Preliminary Geotechnical Investigation Report

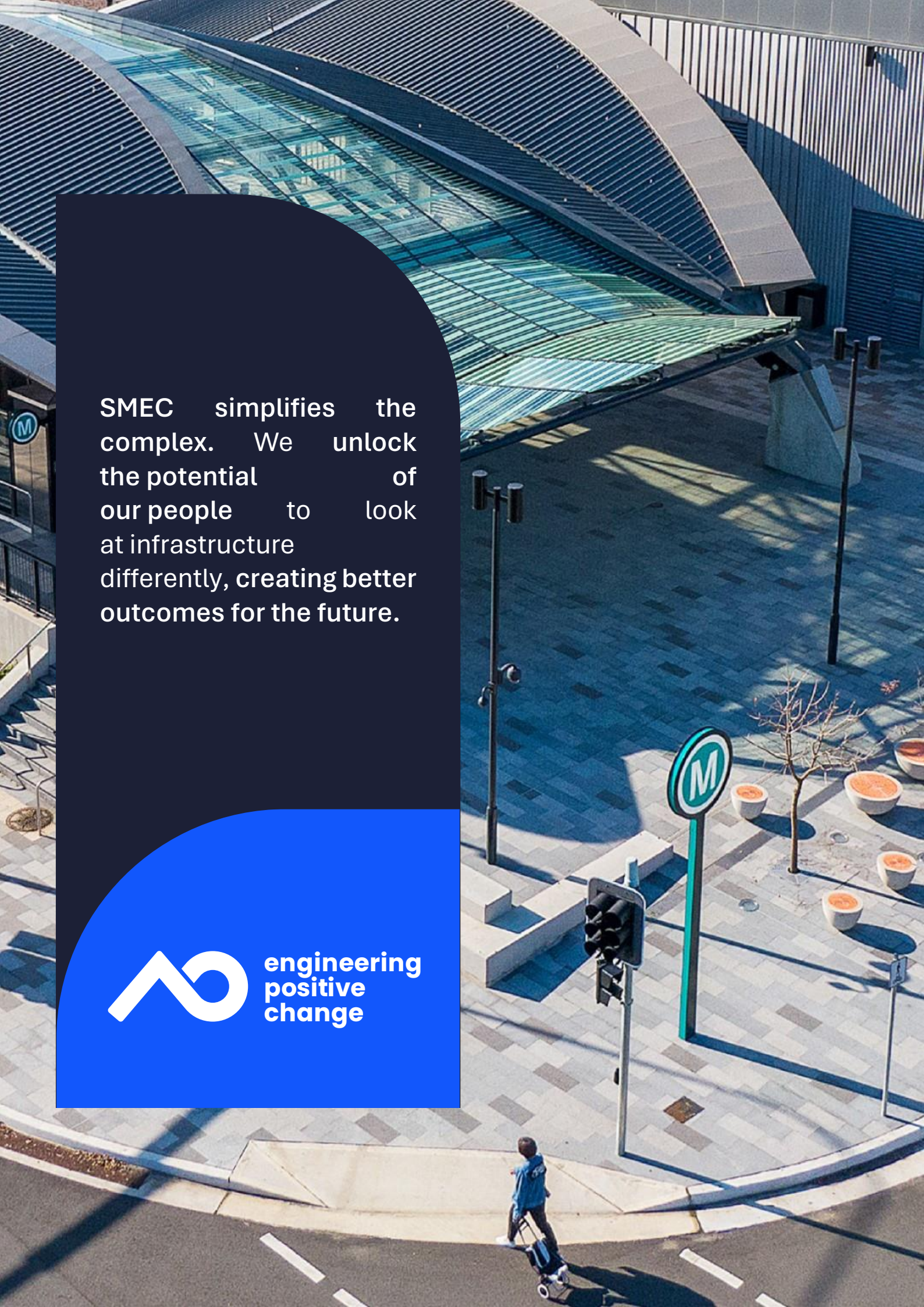
Notsi 475 MW Solar PV

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1. Introduction

1.1 Background and Project Description

SMEC South Africa (“SMEC”) were appointed by African Clean Energy Developments (Pty) Ltd (“ACED”) to conduct geotechnical investigations for the proposed Notsi 475 MW Solar PV (“Project”). The project is located near Dealesville, Free State Province. This report presents the fieldwork data acquired from the geotechnical investigations.

The data is interpreted further to provide ACED with geotechnical considerations and recommendations for the proposed development.

1.2 Terms of Reference

SMEC responded to a request for quotation from ACED received on 20 September 2024 for the provision of geotechnical engineering services required for the Project. SMEC’s proposal, reference number PB2617, and dated 21 October 2024, was accepted by ACED on 24 October 2024 subsequently appointing SMEC to conduct the geotechnical investigations.

1.3 Objective

The objective of the investigation is to establish an understanding of the ground conditions across the site area in terms of lithology, stratigraphy, general geology, geomechanical characteristics of the in-situ soils / rock to permit the development of the geotechnical design for earthworks and foundations.

To fulfil this objective, the investigation will provide information on:

- Geological sequence and geotechnical zonation across the site;
- Thickness and variability of in-situ soils / rocks;
- Depth to bedrock;
- Mechanical properties of in-situ soils and rock;
- Groundwater;
- Excavatability of subsurface materials;
- Suitability of in-situ material for use in construction, and
- Foundation recommendations.

1.4 Codes of Practices and Standards

The investigation was carried out according to the standard codes of practice and guidelines, with reference made to the following documents:

- Site Investigation Code of Practice, 1st Edition. SAICE Geotechnical Division (2010).
- Guidelines for Soil and Rock Logging in South Africa. AEG/SAIEG/SAICE (2002).
- SANS 10160-5: Basis of Structural Design and Actions for Buildings and Industrial Structures: Part 5: Basis of Geotechnical Design and Actions (2011).

1.5 Limitations of Assessment

The services performed by SMEC were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession practising under similar conditions for the requirements of

a geotechnical preliminary and /or detailed study (SAICE, 2010). This report is based on data obtained from a limited number of test pit positions. The nature of geotechnical engineering is such that variations in soil and rock conditions may occur even where sites seem to be consistent. Variations in what is reported here may become evident during the successive phases of the development and thus it is imperative that a suitably qualified geotechnical practitioner is involved in the next phase to ensure that conditions at variance with those predicted herein are not left unaddressed in the final designs.

On a conceptual basis, the investigation may be considered as Category 1 (SANS 10160-5), comprising desktop study, qualitative geotechnical investigations including description of the soil profile and groundwater conditions and identification of problem soils. This is supplemented by basic field and laboratory testing. This philosophical approach forms the basis of Eurocode 7 (2004) where geotechnical design and structural design go hand-in-hand. Therefore, the geotechnical investigation report will culminate with recommendations that will provide the Client with the necessary information to assess the viability of the project, from a geotechnical perspective.

It must be noted that the recommendation(s) provided herein do not comprise a geotechnical design report and thus this report does not present a design for the proposed foundation support solution(s). Referral to a design solution is conceptual and is guided by applicable standards and the design process, as per the latest version of SANS 10160 in general and specifically SANS 10160-5, must be consulted as part of another phase of the project.

1.6 Investigation Approach

The investigation comprised the following:

- Desktop study, that is, review of available information;
- Site walk-over survey;
- Excavation of test pits,
- In-situ thermal conductivity; and
- Sampling for laboratory testing purposes.

1.6.1 Desktop Study

The desktop study was conducted to understand the geology of the site and any other pertinent issues across the site. The following sources were consulted as part of the desktop review:

- Aerial imagery (Google Earth®) and 1: 50 000 scale topographic sheets (2825 DA Elandsfontein and 2825 DC Wolwespruit);
- The geological map series (1: 250 000 scale) for Kimberley (2824);
- National Groundwater Archive hydrological map series (1 : 500 000) for Kimberley (2722);
- SMEC geotechnical database of previous geotechnical / geological investigations undertaken near the site and within similar geological profiles / geotechnical zonation, and;
- Literature review of applicable geological and geotechnical engineering information sources.

1.6.2 Site Walk-Over Survey

During the field investigations, observations of the conditions in and around the site were recorded, where possible. The site walk-over enabled the field team to make note of the ease of access, topography, drainage features, and outcrops. This included setting out test pit localities utilizing a handheld GPS.

1.6.3 Excavation of Test Pits

A total of 165 no were excavated across the site utilizing a CAT 428F Tractor-Loader-Backhoe (TLB). The test pits were excavated a predetermined positions.

All test pit positions were set out using a handheld GPS accurate to 5 m and were profiled by an engineering geologist in accordance with the SAIEG (2002) guidelines. All test pits were backfilled after profiling and sampling. The test pit positions are shown in the drawings attached to Appendix C.

1.6.4 Thermal resistivity

Both in-situ and laboratory based thermal resistivity tests were conducted. The in-situ tests were undertaken in 10 no. test pits and samples from these test pits were taken to undergo laboratory thermal in-situ tests.

1.6.5 Laboratory Testing

The following tests were conducted on disturbed and undisturbed samples recovered in the test pits across the footprint of the proposed Solar PV's and this have been attached to Appendix D of the report:

- Foundation Indicators
- MOD and California Bearing Ratio
- Thermal Resistivity
- BRE_DIN tests
- Free Swell test
- Collapse Potential test

2. Site Dictates

2.1 Site Location

The Project is located near Dealesville, approximately 70 km northwest of Bloemfontein, in the Tokologo Local Municipality, Free State Province. The project consists of the PV site and an overhead line corridor as shown in Figure 2-1. The OHL route is highlighted in white while the proposed solar PV site is highlighted in blue.

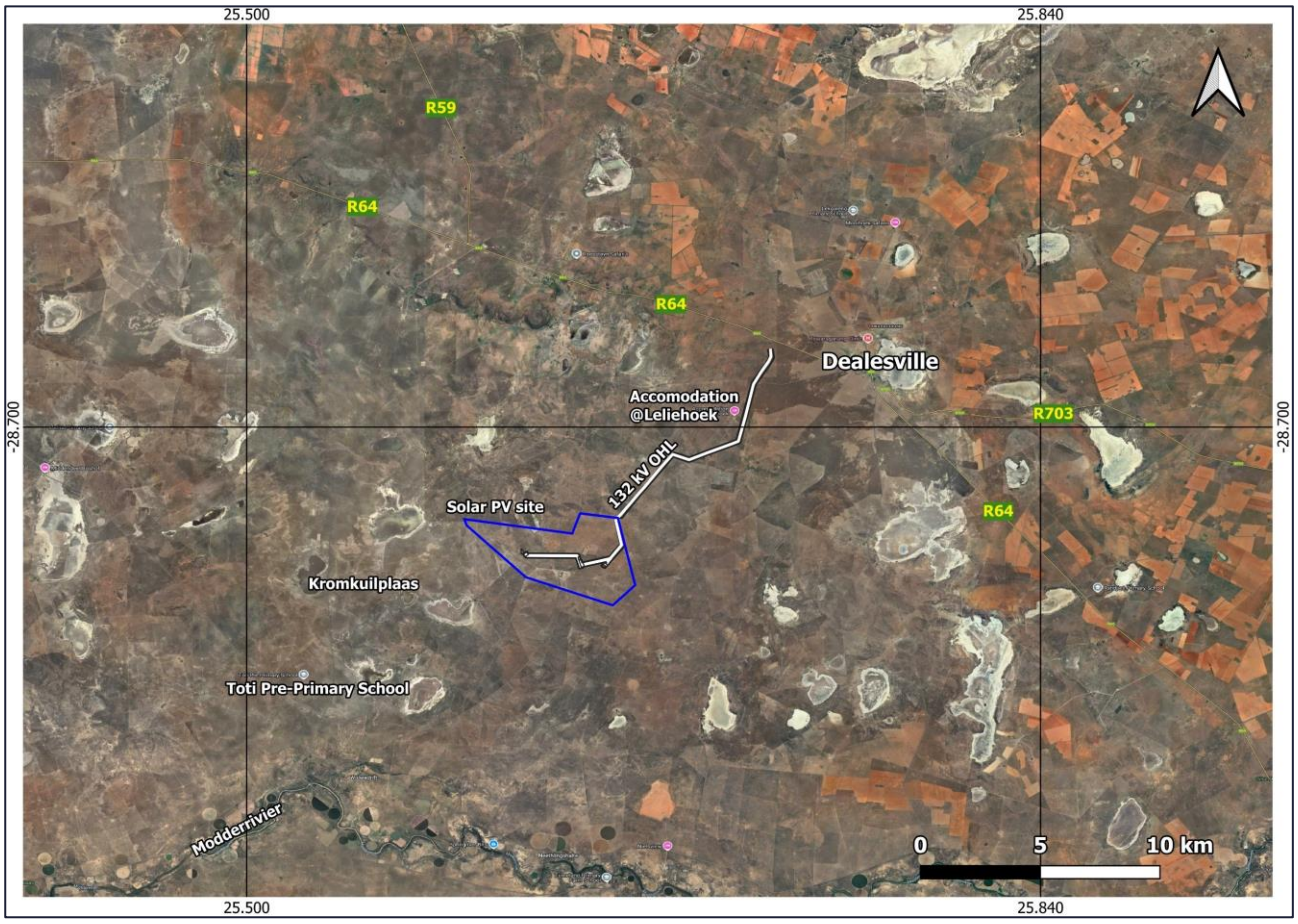


Figure 2-1: Location of the site

2.2 Existing Conditions

The Project site is mainly undeveloped and is used primarily for grazing. It is accessible through existing farm tracks and through various access gates.

No drainage channels were observed across the sites but there are however a number of salt pans surrounding the site. In terms of topography, the site slopes in a north-westerly direction.

3. Proposed Development

The entire project scope consists of the following:

- The PV solar array.
- 15 km long, 132 kV OHL route within a 200 m corridor.
- Eskom substation / switching station covering an area of approximately 4.6 ha), and
- Approximately 1 ha temporary laydown and site office immediately north of the Eskom substation / switching station.

3.1 Climate

The climate in the area is classified as BSk by the Köppen-Geiger, which is characterised by low annual rainfall and significant temperature variations throughout the year. The mean yearly temperature recorded in Bloemfontein is 17.1 ºC. January experiences the highest temperature of 23.4 ºC and July is the coldest month of the year with 8.9 ºC. The mean annual precipitation is approximately 545 mm, falling mainly during summer. Precipitation is the lowest in July, with an average of 9 mm. The greatest amount of precipitation occurs in January, with an average of 85 mm. The average monthly temperature and rainfall distribution are illustrated in Figure 3-1.

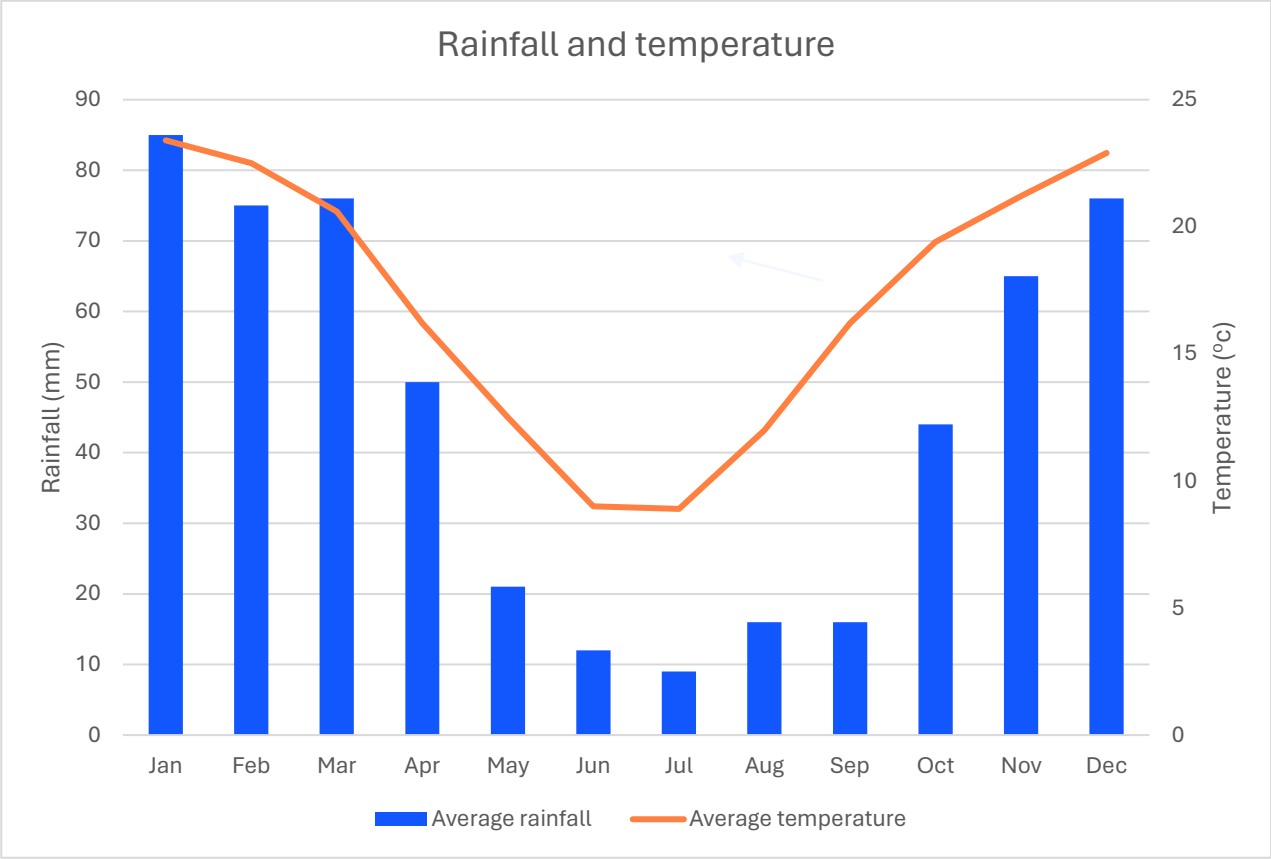


Figure 3-1: Summary of Climatic Data in Dealesville (Climate data, 2024).

The climate is a pivotal factor for geotechnical considerations as it determines the mode and rate of rock mass weathering and, thus, the formation of soils. Weinert (1980) developed the N-Value to differentiate between regions of similar weathering characteristics. According to Figure 3-2, the N-value for this region is > 5, indicating that disintegration will be the predominant type of weathering, resulting in shallow, residual soil horizons.

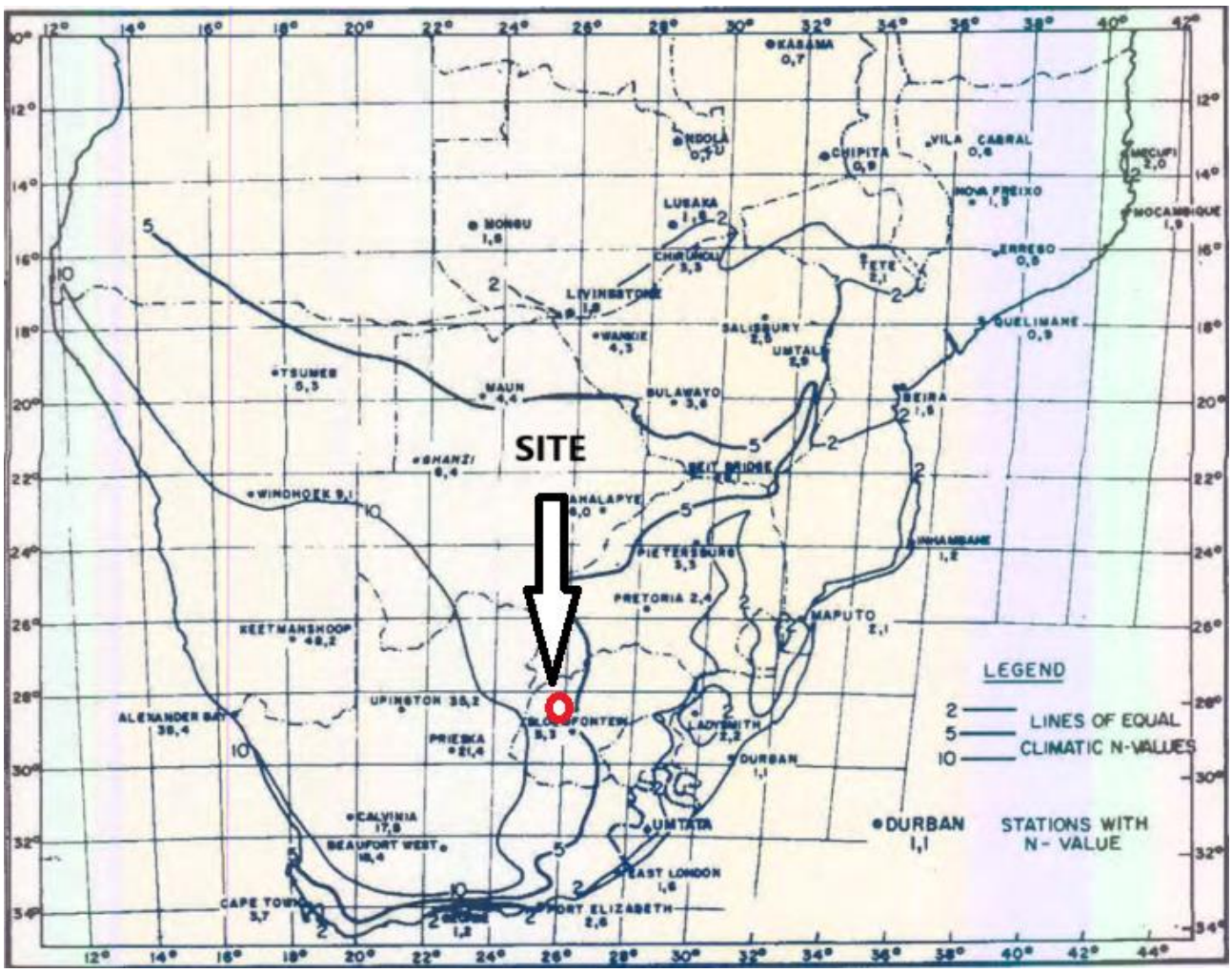


Figure 3-2: Map of South Africa indicating Weinert N values (after Weinert, 1980)

3.2 Regional Geology

The geological map (Figure 3-3) of Kimberley (sheet no. 2824, scale 1:250 000) shows the site to be underlain by Quaternary deposits, comprising red and grey Aeolian Sand and shale, siltstone and sandstone of the Tierberg Formation, Ecca Group, Karoo Sequence. This formation has been intruded into by large expanses of dolerite in the form of dykes and sills.

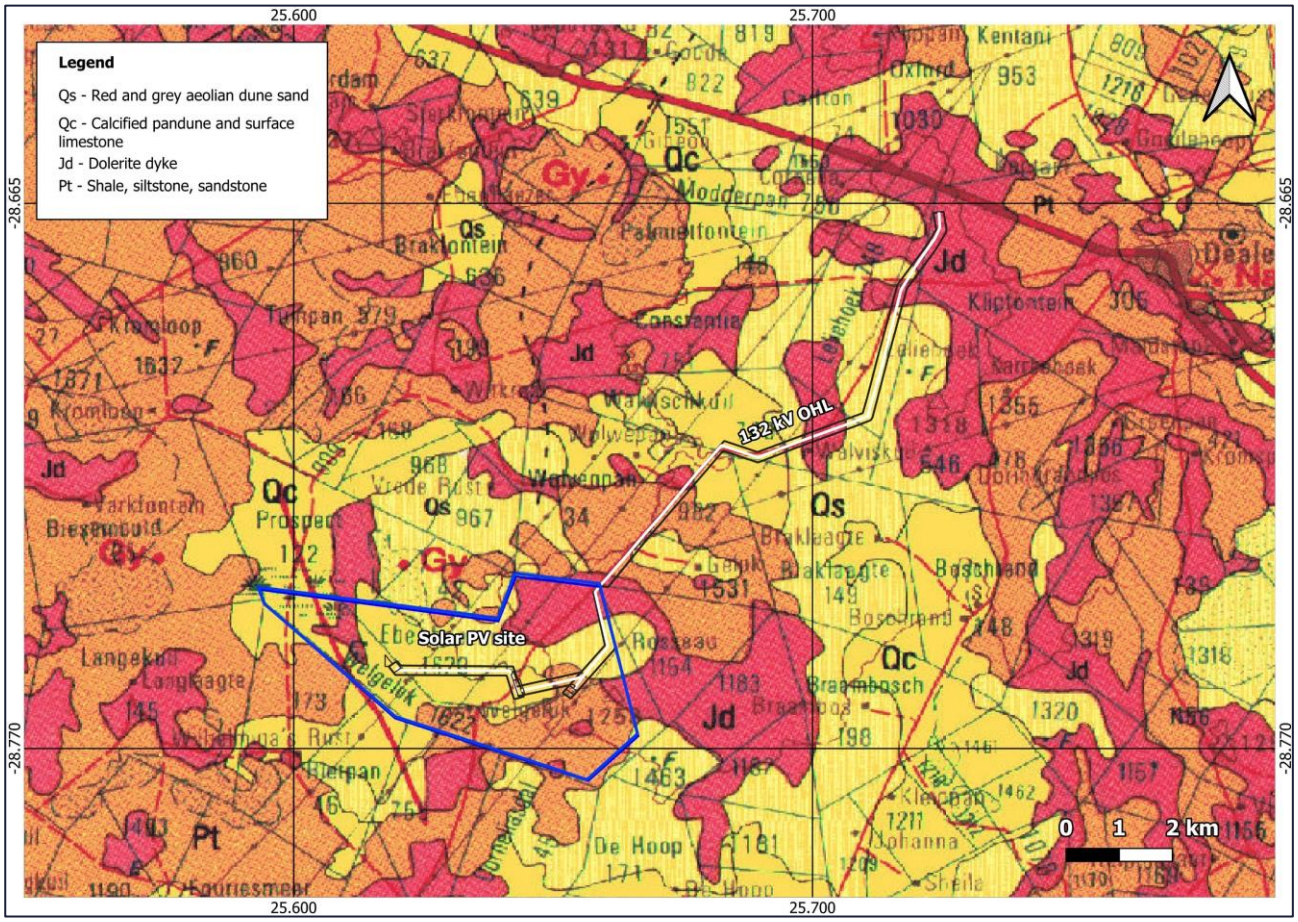


Figure 3-3: Extract from Kimberly (2824), 1: 250 000 Geological Series (Council for Geoscience, 2006).

3.3 Regional Hydrogeology

The depth of groundwater obtained from the existing registered borehole database (National Groundwater Archive) in the area indicates groundwater level to be 22.5 m below ground level within the fractured aquifers where boreholes located in similar aquifers yield between 0.5 to 2.0 l/s (Figure 3-4).

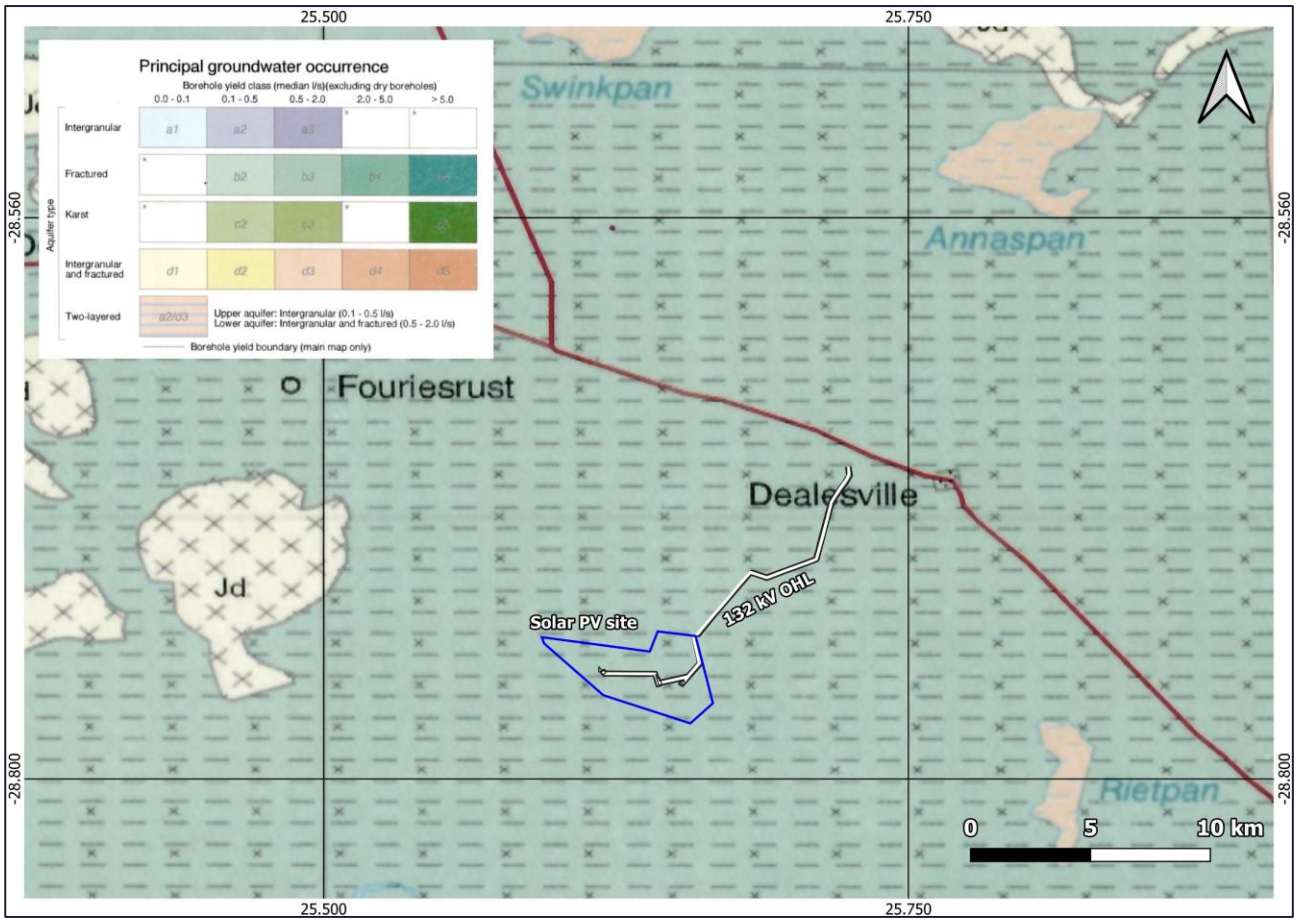


Figure 3-4: Extract from Kimberly (2722), 1: 500 000 Hydrogeological Map Series showing groundwater aquifers characterising the study area.

3.4 Seismicity

Figure 3-5 provides indicative seismic risk across South Africa and the corresponding Peak Ground Acceleration (PGA) with a 10% probability of exceedance within a 50-year period. For design purposes, a baseline PGA in the range of 0.18 g is considered applicable for the proposed site.

Based on SANS 10160-4 (2017), the site is in seismic hazard zone II which is a region of mining induced and natural seismicity (Figure 3-6). As such, buildings shall comply with the minimum requirements for structural and no-structural components set out in SANS 10160-4.

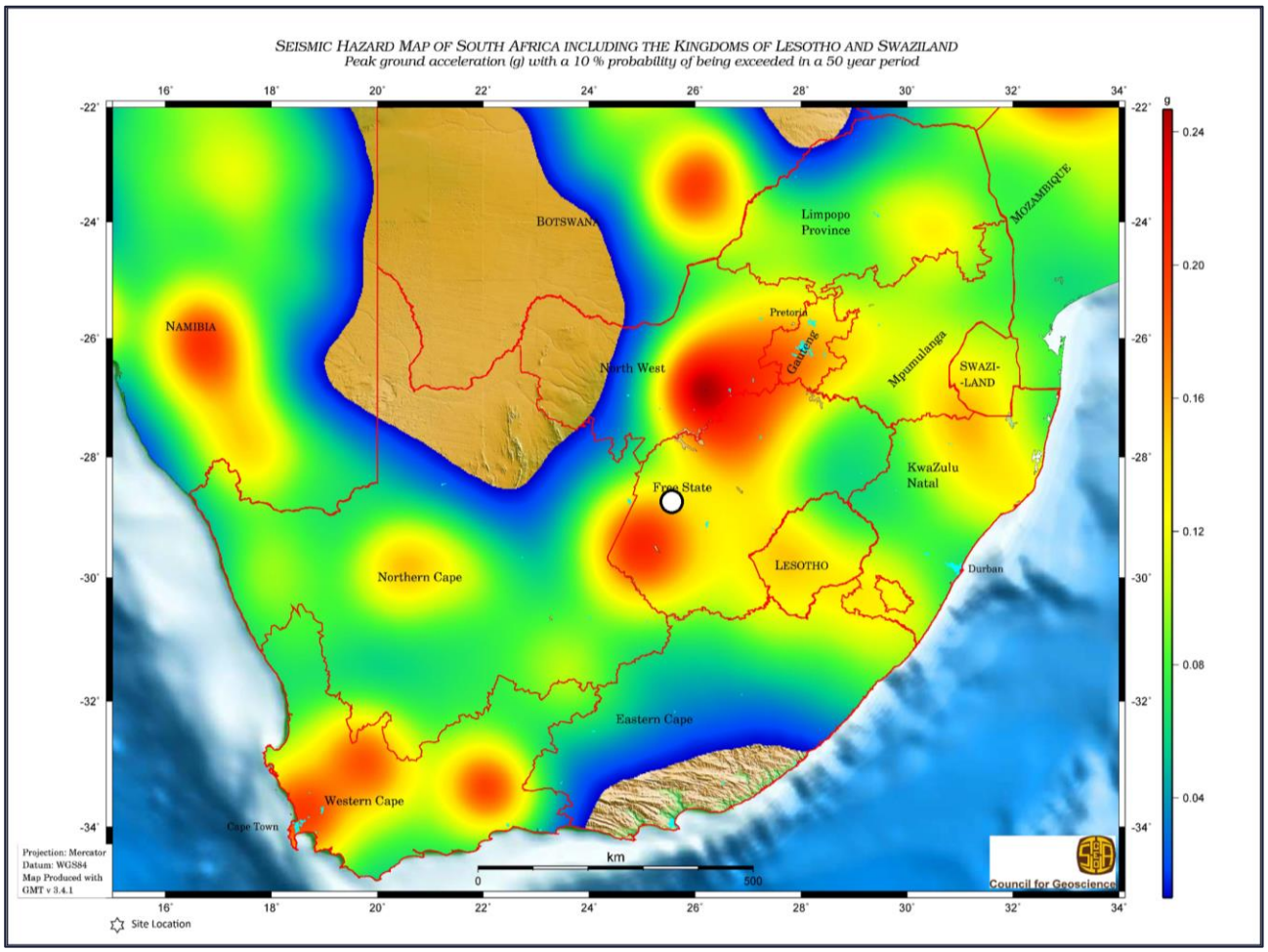


Figure 3-5: Seismic hazards map of South Africa peak ground acceleration (g) with a 10% probability of being exceeded in a 50-year period (Council for Geoscience, 2003)

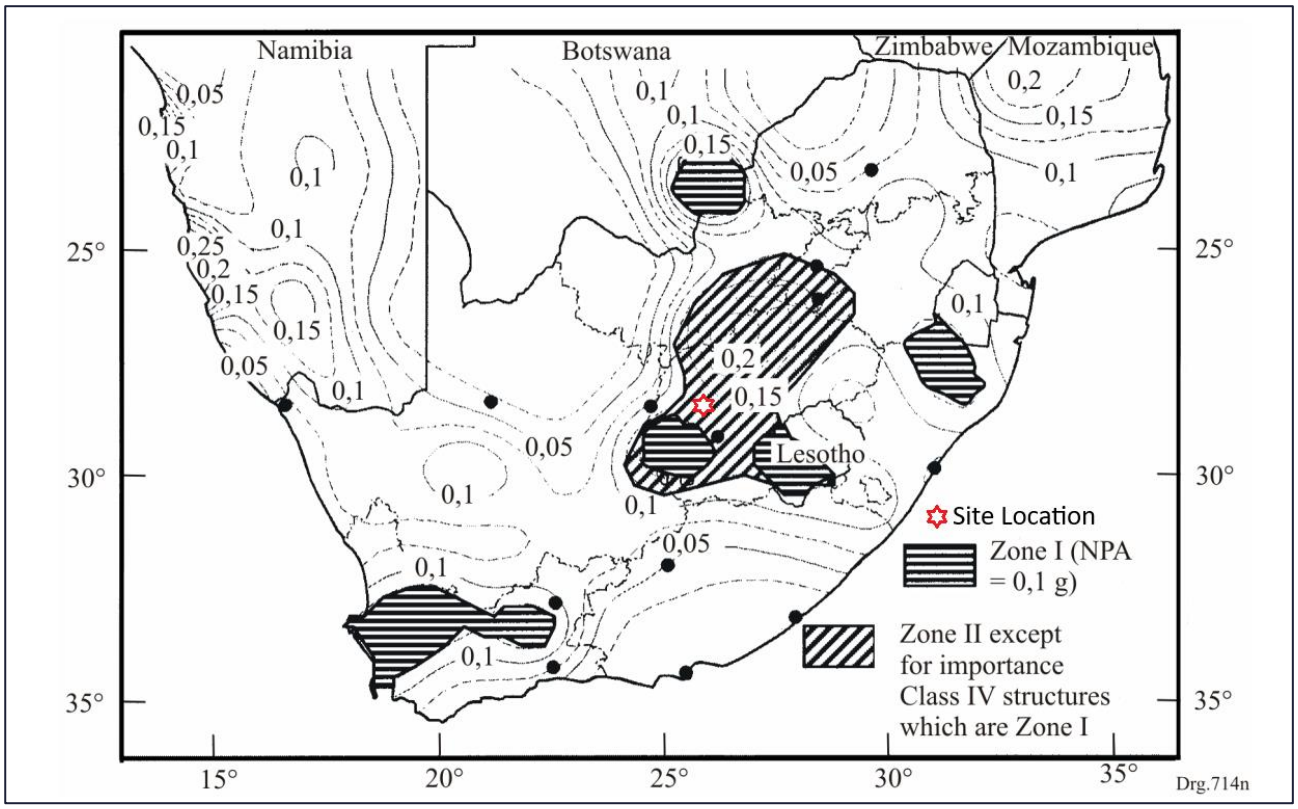


Figure 3-6: SANS 10160-4 seismic map

3.5 Previous Investigations

In 2020, SMEC conducted preliminary geotechnical investigations for the Kentani Cluster Solar PV Project located near the Notsi solar PV site. The location of the Kentani Cluster (highlighted in blue) in relation to the current investigation is shown in Figure 3-7.

The objective of the Kentani Cluster investigation was to establish the geotechnical aspects and boundary conditions of the site(s) earmarked for the envisaged solar plant infrastructure with a reasonable level of confidence to assist in preliminary design of the proposed infrastructure.

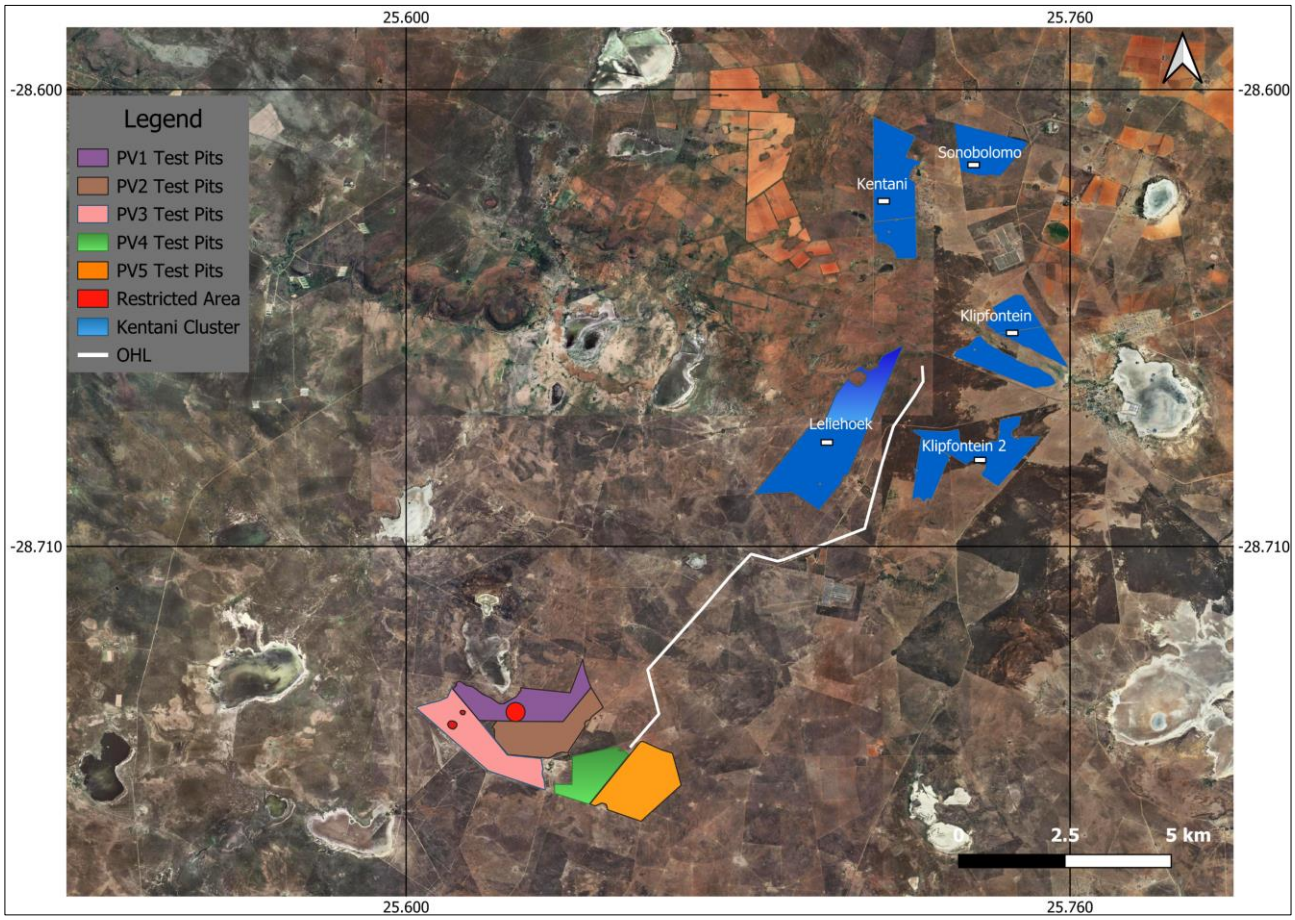


Figure 3-7: Location of the Kentani Cluster in relation to the current investigation.

The results indicate a ground profile consisting of transported and/ or residual soils underlain by calcrete and shale / dolerite bedrock. The soil comprises mainly sandy clay, clayey sand, and sandy gravel/gravelly sand.

In terms of material properties, the sandy clays and clayey sands have a medium to high potential for expansion while the gravels generally have low activity. Based on chemical testing, the soils are generally aggressive to buried steel. In terms of material utilisation, the coarse materials classified as G6 material, in general, while the clays were generally poor materials. Borrow pit material classified as G5-G7 material and are situated at the following locations:

- Borrow pit 1: Calcrete 28°40'7.79"S 25°45'42.03"E;
- Borrow pit 2: Highly weathered to unweathered dolerite 28°41'19.20"S 25°44'57.11"E;
- Borrow pit 3: Calcrete 28°41'49.51"S 25°42'30.92"E.

In terms of excavatability, the majority of the cluster was classed as “Intermediate excavation” generally grading to “Hard Excavation” from relatively shallow depth, with “Soft Excavation” conditions generally in the upper 0.5 - 1.0 m.

4. Investigation results

4.1 Site Walk-Over

The fieldwork was undertaken between November to December 2024 during which time the site walk-over survey was undertaken. The main access to the PV area As alluded earlier, is from the graded S322 main gravel road off the R64 main road at the north and from a network of farm tracks (Figure 4-1). Vehicles with 4x4 capability and high clearance will be required due to high vegetation and several animal burrows and/or mounds across the site (Figure 4-2). Some general views of the PV site are shown in figures below.



Figure 4-1: Graded S322 main gravel road approximately 10 m wide



Figure 4-2: Typical animal mounds at the PV site



Figure 4-3: A view of the solar PV site from within PV5 looking southeast



Figure 4-4: A view of the solar PV from within PV4 looking northwest



Figure 4-5: A view of the solar PV site from within PV 1

4.2 Soil/Rock Profiles

The approximate positions of test pits excavated on site are shown in the drawings attached to Appendix C of this report. There are 3 no. typical ground profiles that have been determined currently across the PV area. These comprise a **soil only profile**, **soil-calcrete-rock profile** and **soil over rock**. The distribution of the test pits over these profiles is shown in Figure 4-6 below. The properties of the individual ground units are summarised in Table 4-1 below and discussed subsequently.

Table 4-1: Summary of ground units across the site

Ground unit	Material properties	Thickness
Soils	**Transported and residual** *Clayey sands, silty sands*	0.1 - 0.7 m
	Sandy clays and gravels	0.1 - 2.8 m
Calcrete	**Calcrete** *Hardpan, powered calcrete*	0.1 - 1.2 m
Bedrock	**Shale and dolerite** *Very soft rock to soft rock*	-

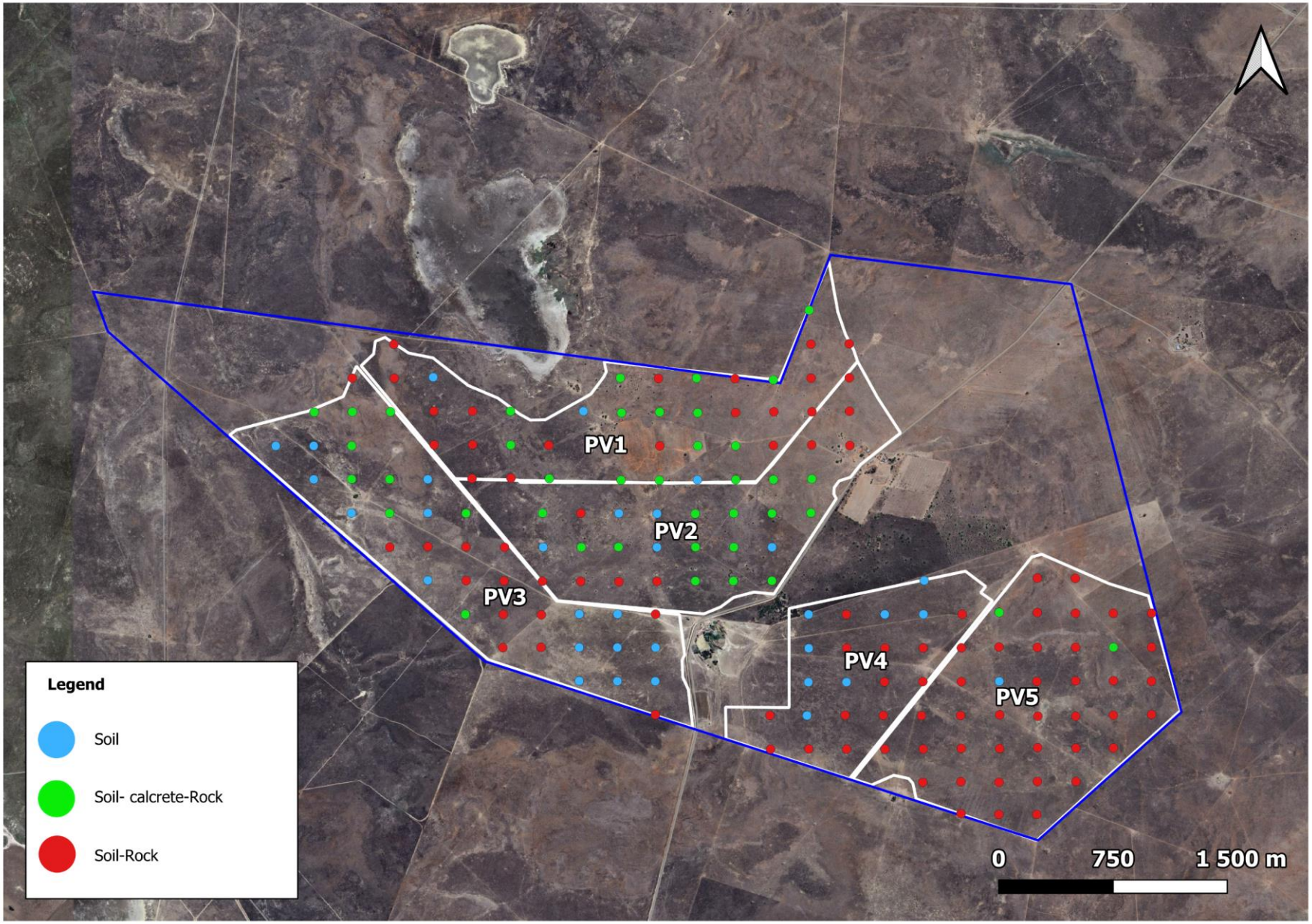


Figure 4-6: Typical ground profiles across the site

4.2.1 Transported Soils

The transported soils mainly comprise Aeolian Sands and hillwash (or topsoil) and are encountered almost throughout the site. These layers occur from surface and are underlain by calcrete and residual soils or directly overlying rock. On average, the thickness ranges between 0.1 m and 0.7 m. The material comprises mainly clayey sand soils although sandy silty clays occur with generally a loose to medium dense consistency. Typical Aeolian Sands stockpile is shown in Figure 4-7 below.



Figure 4-7: Typical Aeolian Sands material

4.2.2 Residual Soils

The residual soils mainly comprise residual shale derived from the weathering of the underlying bedrock. Where encountered, the soils are generally overlain by transported soils and intermittently, by calcrete. The average thickness of this unit ranges between 0.1 m and 2.8 m. In terms of the materials, these comprises sandy silty clays, gravelly clays and clayey - sandy gravels. The consistency is medium dense to dense on gravelly-sandy materials and firm to stiff on clayey materials.

4.2.3 Calcrete

The calcrete occurs mainly below the transported soils as hardpan or powder calcrete. The average thickness of this horizon ranges between 0.1 m and 1.2 m. It is generally excavated as very dense, strongly cemented gravelly sand. Calcrete recovered as gravelly material is shown in Figure 4-8 below.



Figure 4-8: Typical calcrete recovery

4.2.4 Bedrock

Bedrock comprises mainly shale of the Tierberg Formation which has been intruded by dolerites. Typical shale and dolerite bedrock at site are shown in Figure 4-9 and Figure 4-10 below. Where excavated, the bedrock is generally moderate to highly weathered, very soft rock to soft rock. Medium hard rock is expected below refusal depths. The bedrock is generally recovered as gravels to cobble-sized fragments with some boulders.



Figure 4-9: Shallow shale bedrock



Figure 4-10: Shallow dolerite bedrock

4.3 Depth to Hard Strata

The depth to hard strata has significant implication for solar PV developments as it drives the type of founding solution recommended for the panels. It is therefore important to understand, not only the ground profiles, but also these levels which later has an influence in the recommended solution.

In this regard, the level of hard strata was determined from current test pit results (which we will be refined when all data is available) and is shown as a heat map in Figure 4-11 below. Please note for the purposes of this report, the hard strata are defined as level of very dense horizons, top of calcrete and top of bedrock. Based on the results, this level can range from approximate depth of than 0.4 m to over 2.5 m below surface.

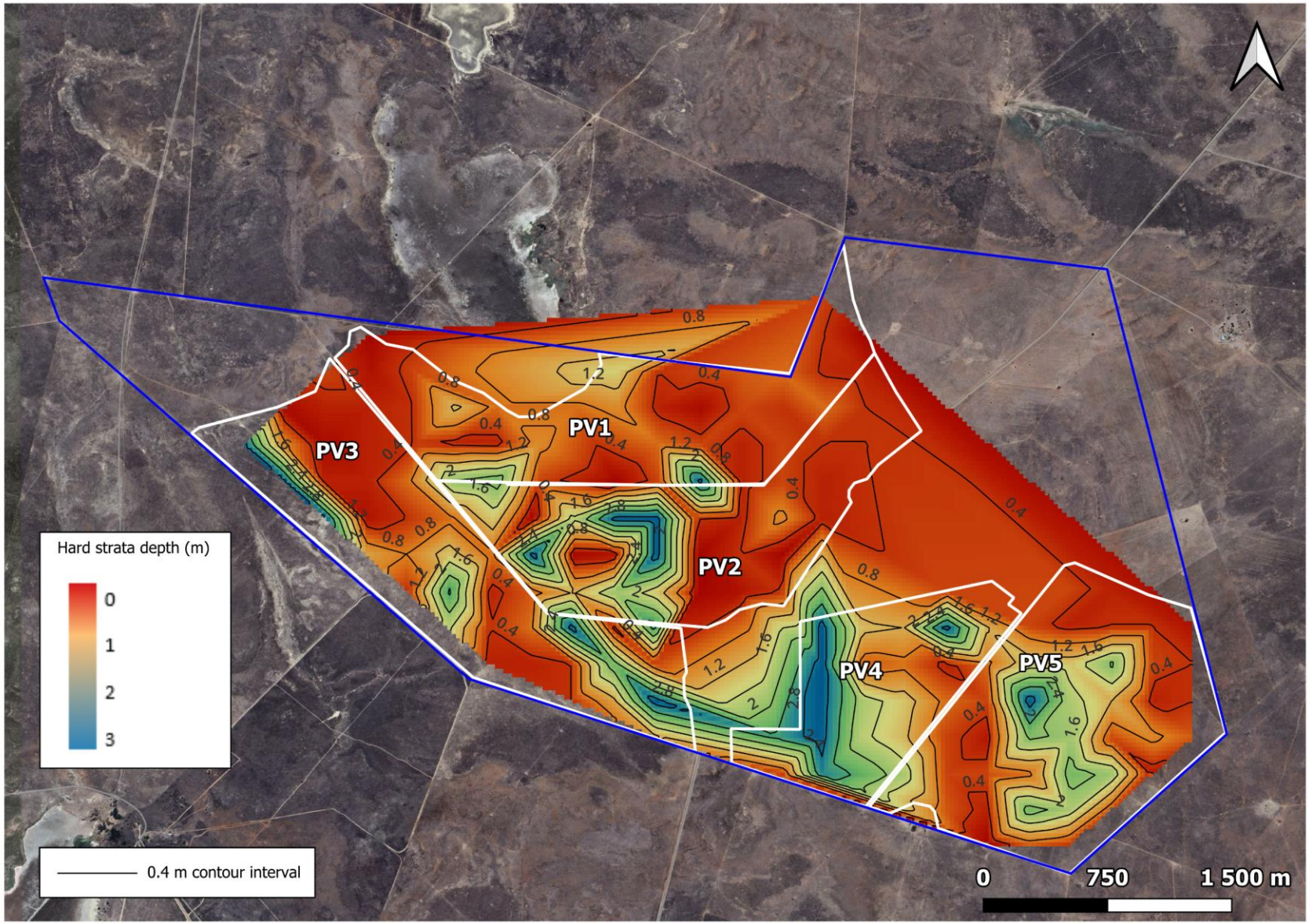


Figure 4-11: Depth of hard strata

4.4 Groundwater

No groundwater was encountered in any of the test pits during the current investigation. However, groundwater is expected to fluctuate seasonally within the soil and underlying bedrock.

4.5 Laboratory Testing

Below are the results and discussion of the laboratory test results conducted on the recovered samples.

4.5.1 Foundation Indicators

Foundation indicator tests were conducted to determine the grading and Atterberg Limits of the materials encountered for material classification purposes. The results are discussed below subsequently attached on Appendix D of this report.

4.5.1.1 Solar PV-1

The material sampled from the test pits within the footprint of Solar PV-1 consists primarily of gravelly sand and silty sand, with sandy gravel observed in PV1-TP2. The results indicate a significant variability in the gravel content, ranging from 0% to 48%, as shown in Figure 4-2 Sand constitutes the highest proportion, varying between 20% and 91%. Silt and clay represent the smallest fractions, with silt ranging from 7% to 37%, and clay ranging from 0% to 1.7%.

All samples exhibit low plasticity, with liquid limits and plasticity indices ranging from 0% to 4% and 0% to 21%, respectively. Additionally, the material shows a low potential for expansion, as assessed using the method outlined by Van der Merwe (1964). According to the USCS method, the material across the samples is generally classified as SM and SC, with an SP classification noted in PV1-TP2.

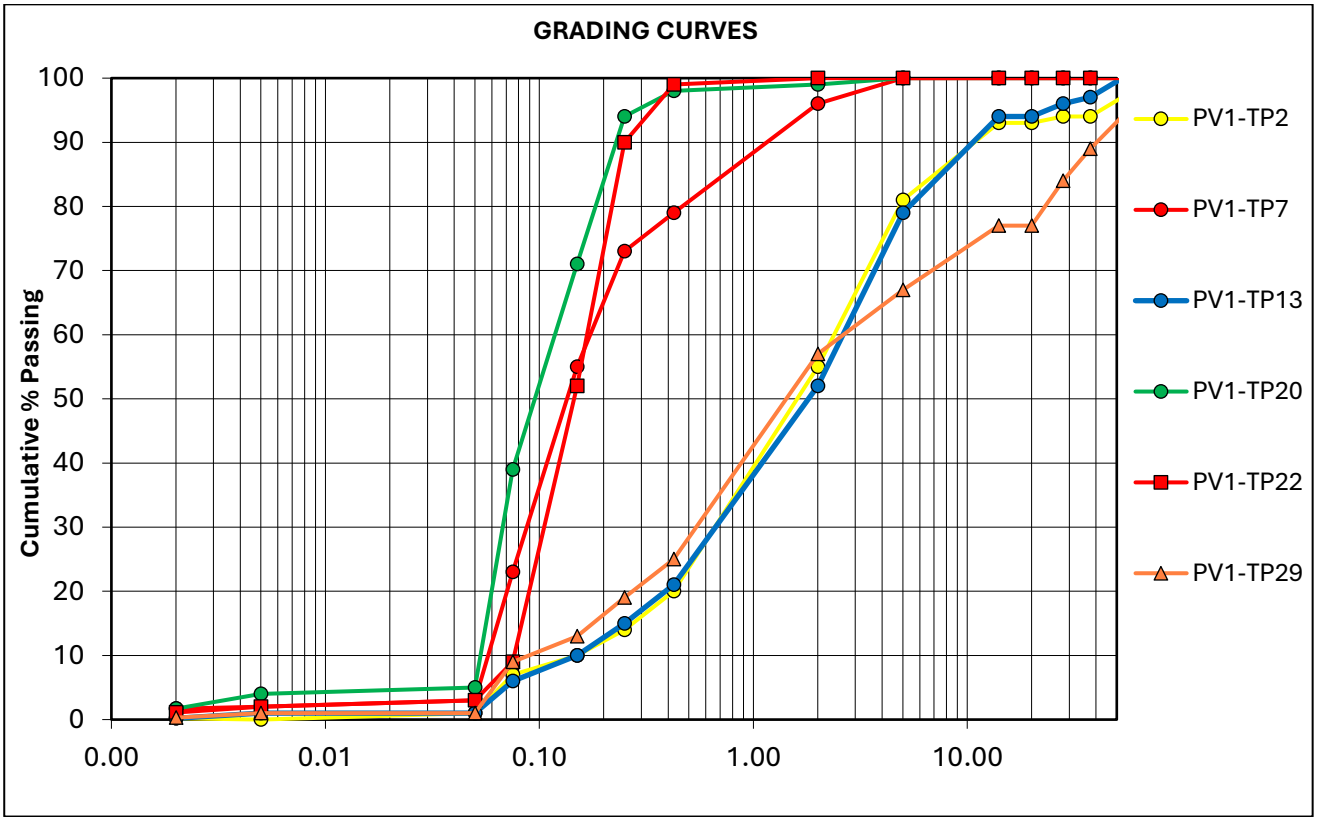


Figure 4-12: Grading Curves for Solar PV-1 samples

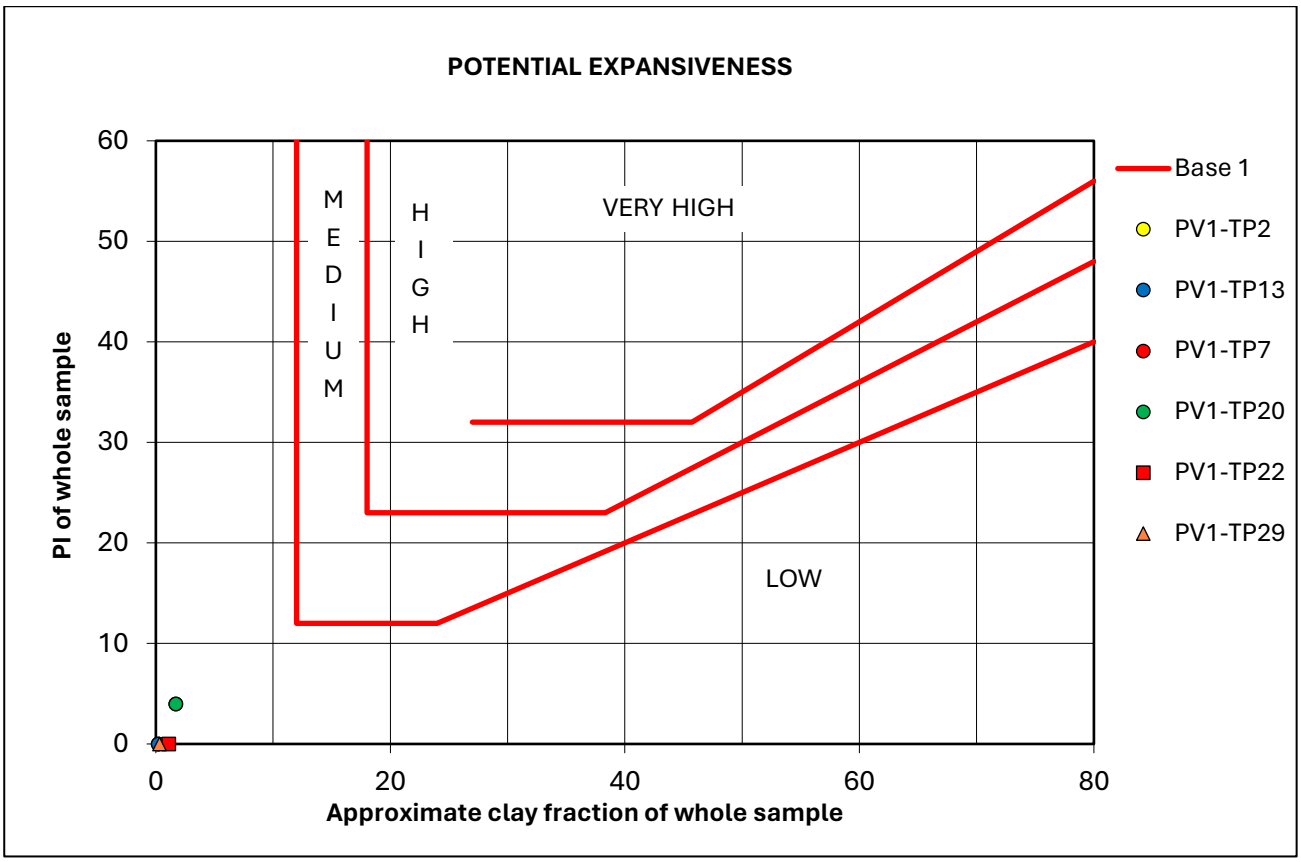


Figure 4-13: Potential expansiveness of Solar PV-1 Samples

4.5.1.2 Solar PV-2

The results indicated predominantly sandy gravelly material with only one instance of gravelly sand noted in PV2-TP2. The gravel content ranges from 40% to 66%, as shown in Figure 4-15 Sand constitutes between 31% and 39%. Silt and clay represent the smallest fractions, with silt ranging from 2.9% to 20.5%, and clay ranging from 0.1% to 1%, respectively.

The material is primarily of moderate plasticity which can be seen by liquid limit and plasticity indices ranging from 32% to 48% and 6% to 8% respectively however the sample tested at PV2-TP5 shows that the material is of very low plasticity with liquid limit and plasticity indices of 0%. The material shows a low expansion potential. According to the USCS method, the material across the samples is generally classified as SM with PV2-TP2 classified as ML.

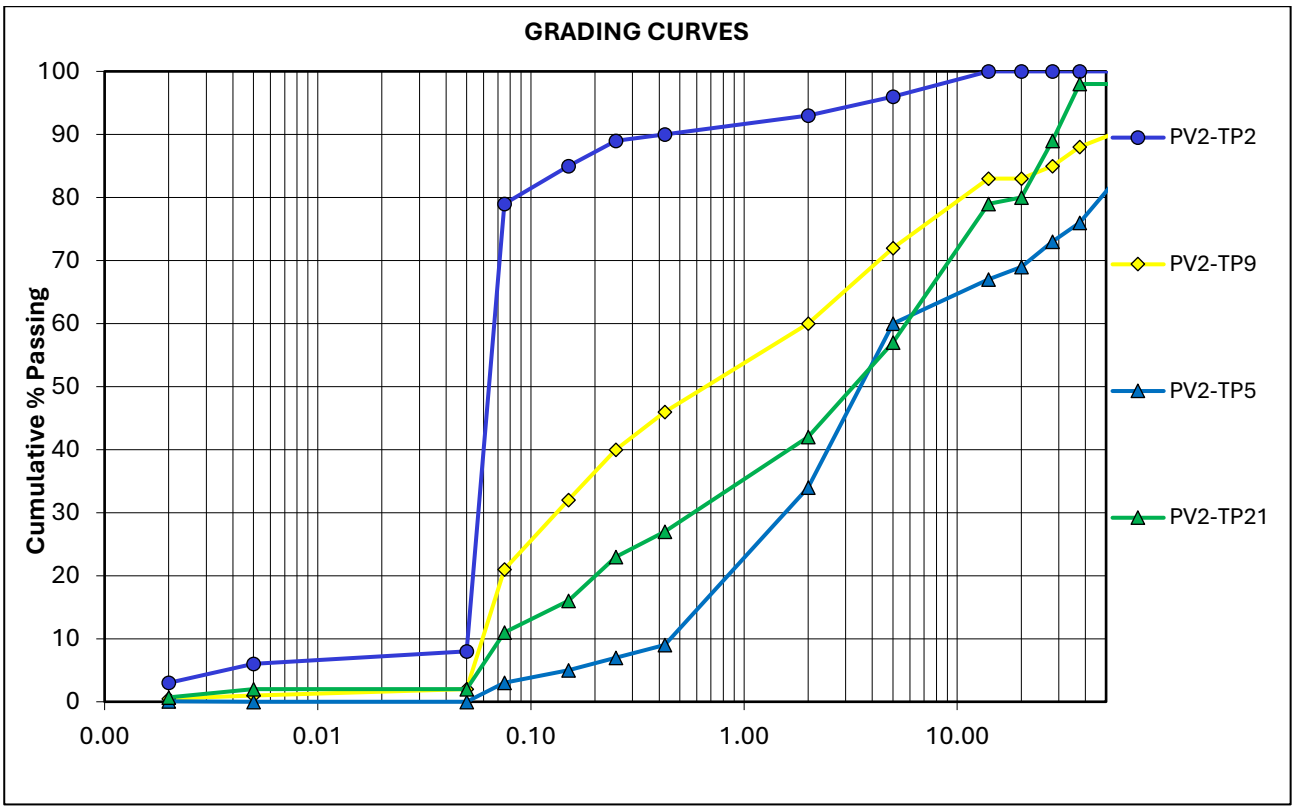


Figure 4-14: Grading Curves for Solar PV-2 samples

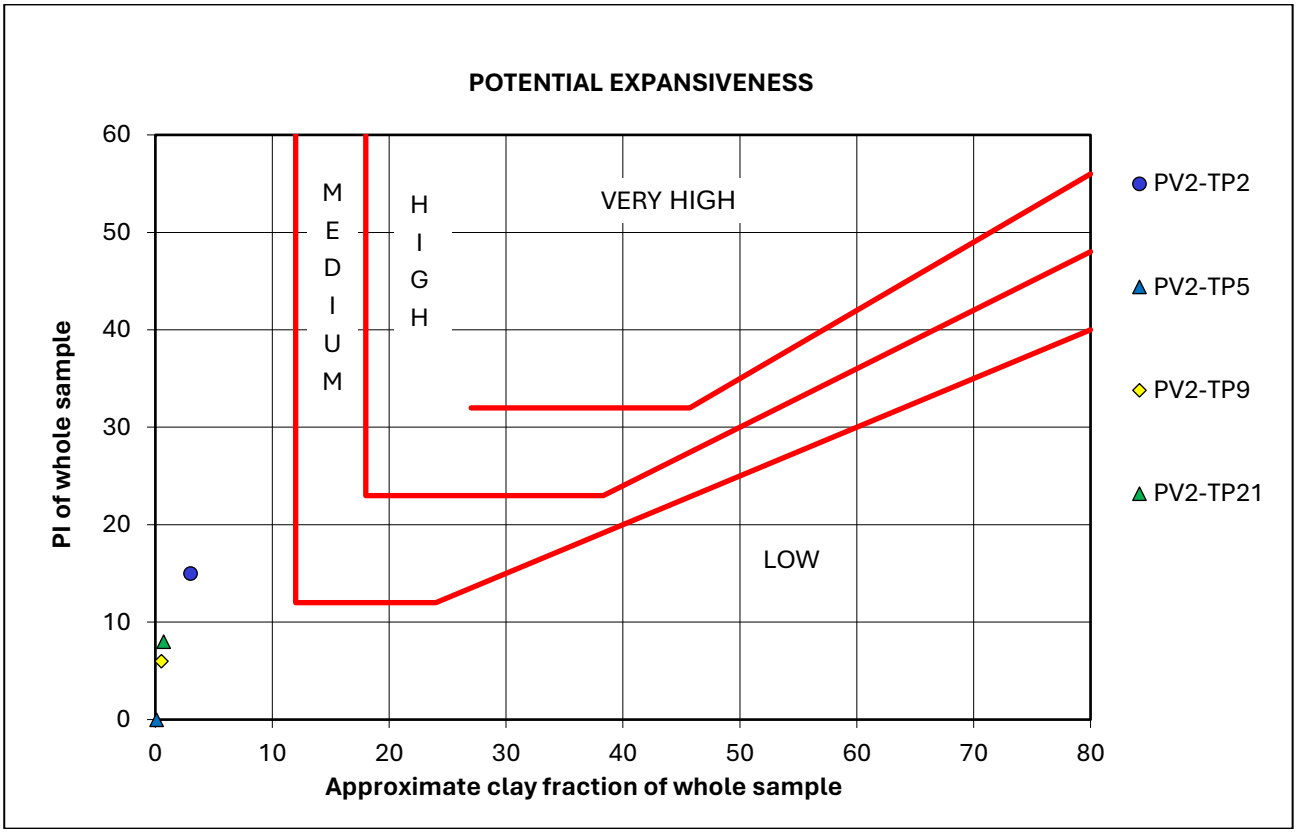


Figure 4-15: Potential expansiveness of Solar PV-2 Samples

4.5.1.3 Solar PV-3

Based on the results, the material exhibits considerable variability, with no single dominant composition across the samples. The material is predominantly sand, with proportions ranging from 13% to 78%. The clay content is

relatively low, ranging from 0.1% to 2.9%, while silt content varies from 3.9% to 50.1%. Gravel content shows the highest variability, ranging from 1% to 83%.

The results indicate that four of the six samples—specifically PV3-TP1, PV3-TP23, PV3-TP27, and PV3-TP30—exhibit moderate plasticity, with liquid limits ranging from 21% to 50%. However, the plasticity indices for these samples range from 6% to 23%, which, according to the classification outlined by Anon, O.H. (1979) in *Classification of Rocks and Soils for Engineering Geological Mapping*, corresponds to materials with high plasticity. The remaining two samples exhibit no significant water-holding potential, with both the liquid limit and plasticity index equal to zero. The samples overall demonstrate low expansion potential. According to the USCS classification system, the material is primarily classified as SM and SC, with one instance of ML classification identified in PV3-TP31.

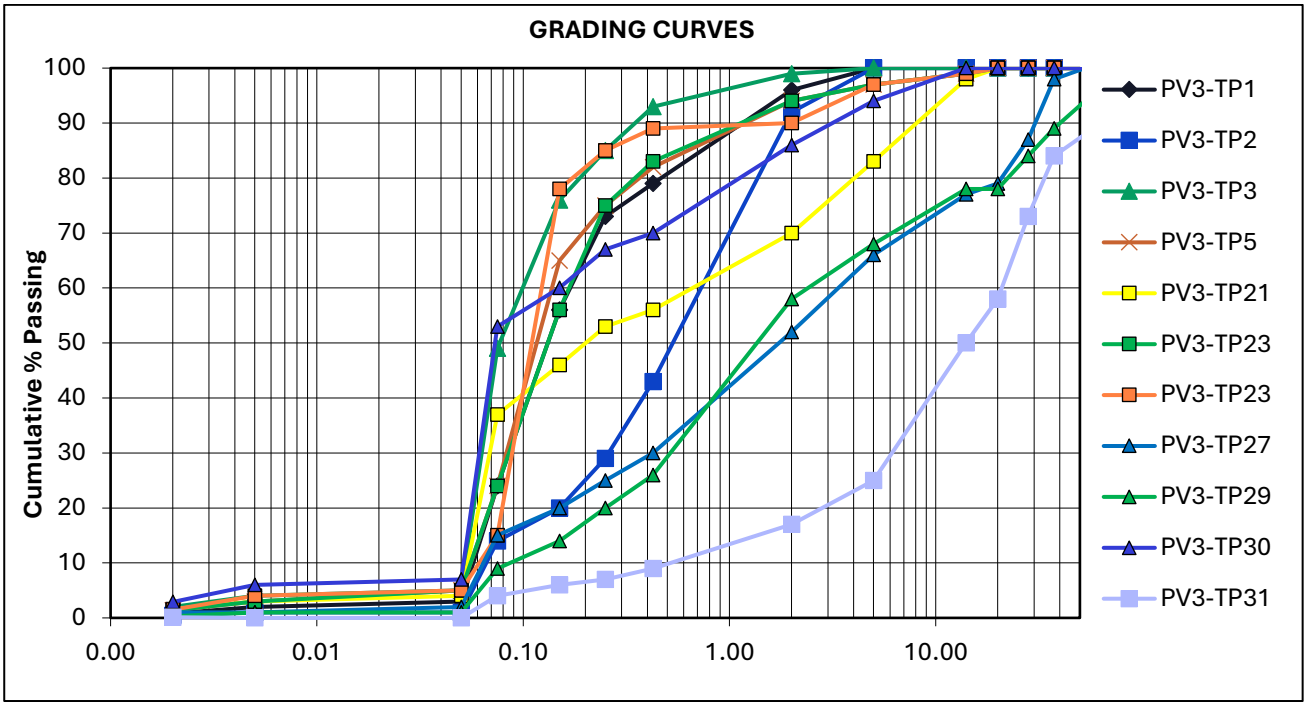


Figure 4-16: Grading Curves for Solar PV-3 samples

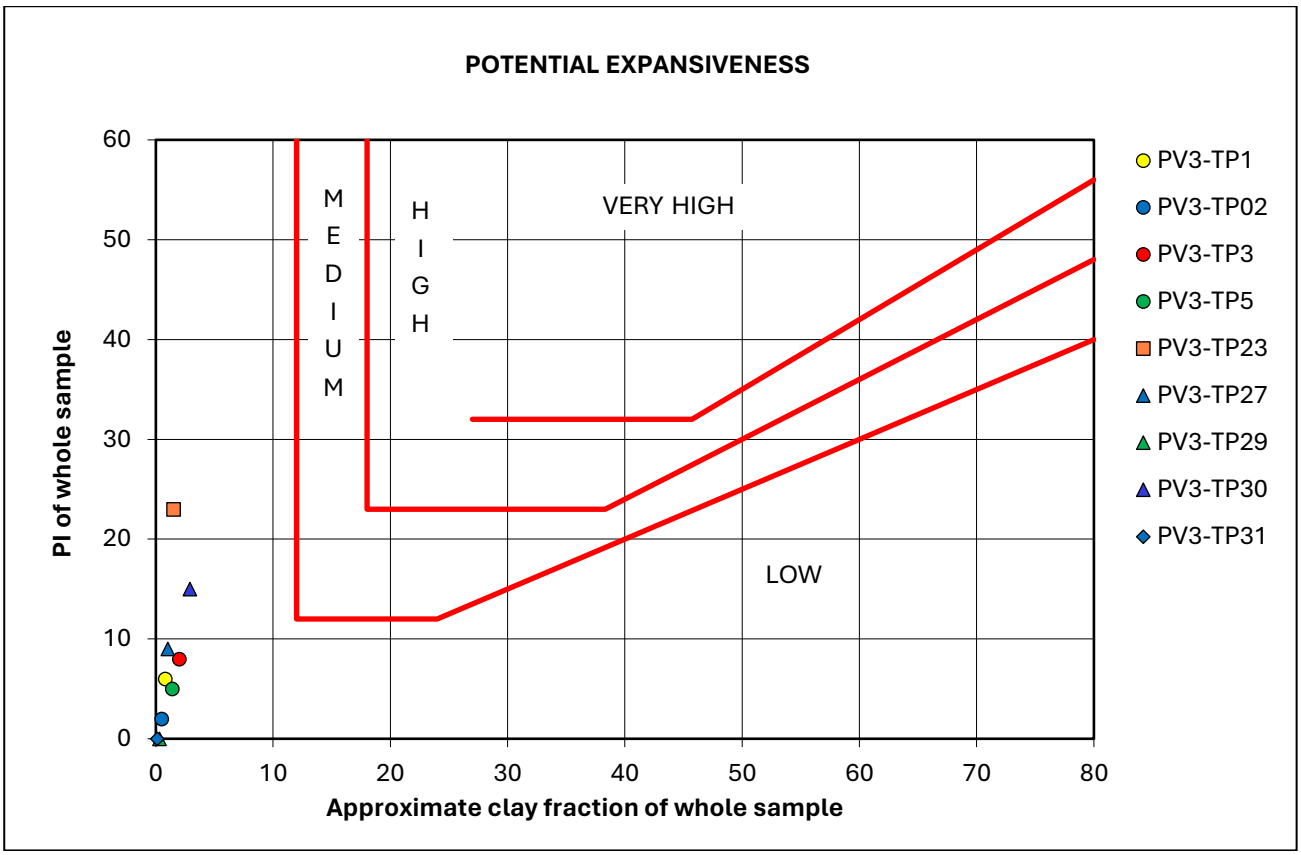


Figure 4-17: Potential expansiveness of Solar PV-3 Samples

4.5.1.4 Solar PV-4

Based on the results, silt content ranges between 76% and 77% in three of the five samples, while two samples—PV4-TP21 and PV4-TP3—show lower silt contents of 7.8% and 23%, respectively. Gravel content is generally low across the samples, ranging from 2% to 7%, although a significantly higher gravel content of 54% was observed in PV4-TP21. Clay content is consistently low, ranging from 0.2% to 3% across all samples. The sand content is similar across four of the five samples, ranging from 14% to 18%, while PV4-TP3 exhibits a notably higher sand content of 70%.

The material predominantly exhibits moderate to high plasticity, with liquid limit values ranging from 23% to 52% and plasticity indices ranging from 5% to 26%. However, PV4-TP21 displays no plasticity, with both the liquid limit and plasticity index equal to zero. The material generally shows low expansion potential according to Van der Merwe (1964). According to the USCS method, no single classification dominates across the samples, as the materials exhibit varying classifications including CH, ML, SM&SC.

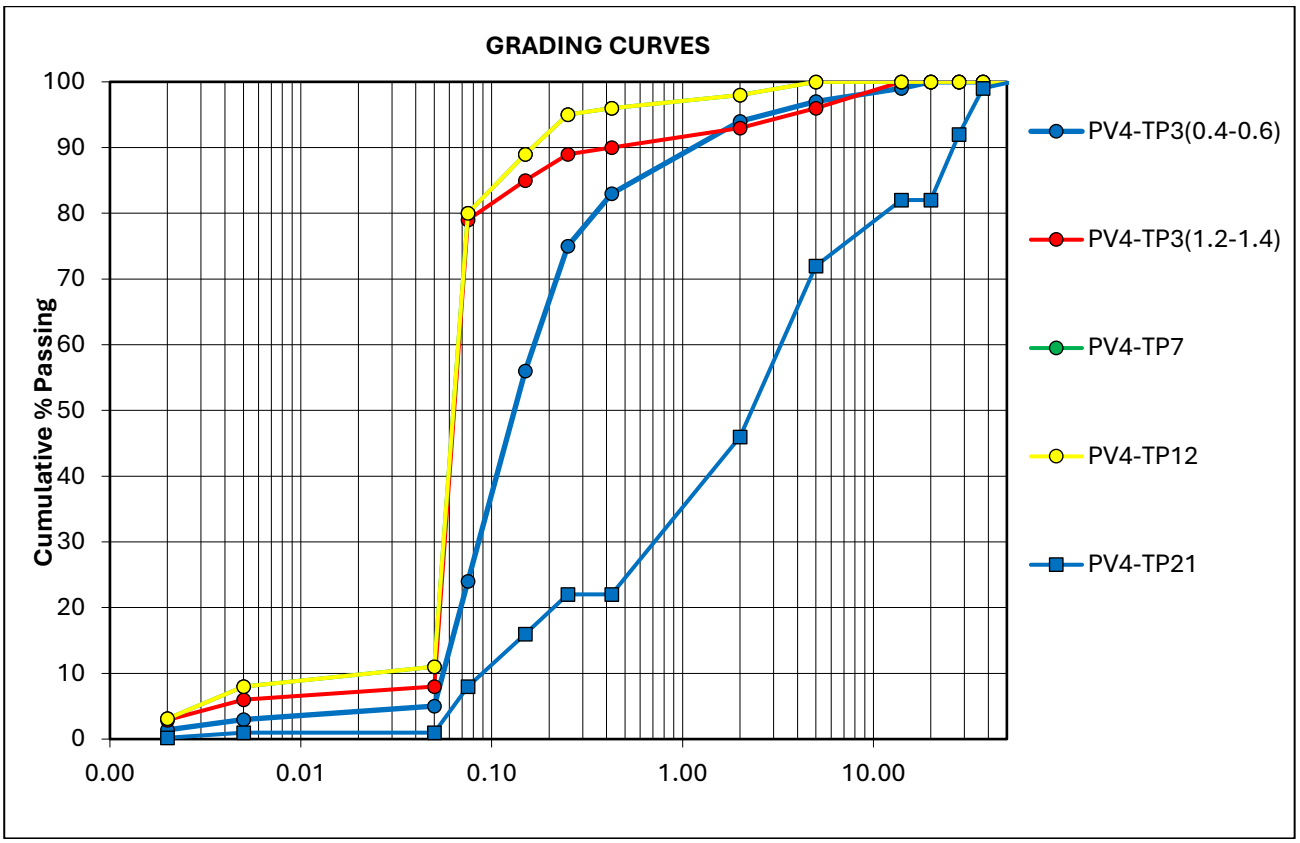


Figure 4-18: Grading Curves for Solar PV-4 samples

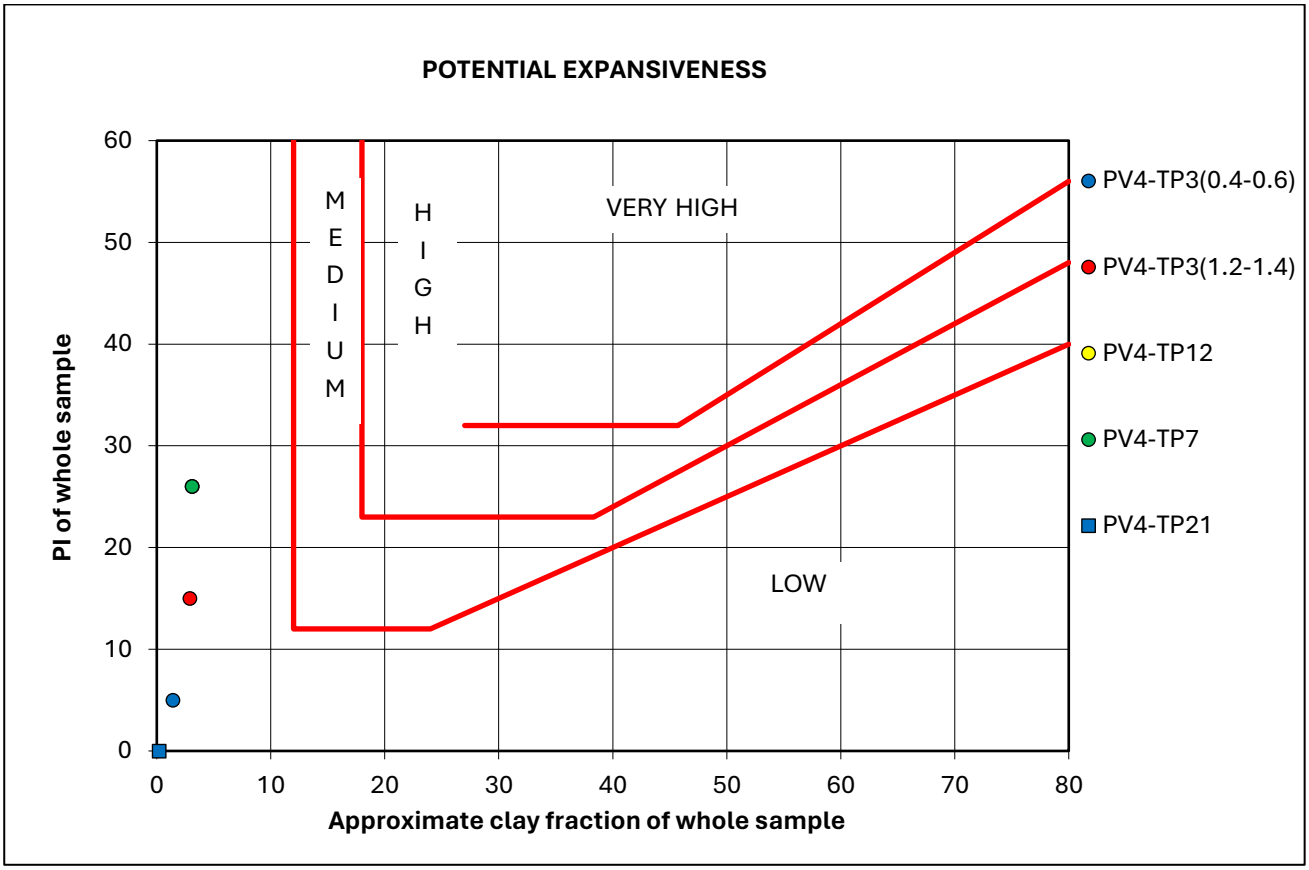


Figure 4-19: Potential expansiveness of Solar PV-4 Samples

4.5.1.5 Solar PV-5

The material within the footprint of Solar PV-5 exhibits variability, with compositions including clayey sand, silty sand, and gravelly sand. The clay content is relatively low, ranging from 0.2% to 3.5%. The sand content shows significant variability, ranging from 16% to 91%. Gravel content is notably low in nine of the seventeen samples (PV5-TP8, PV5-TP9, PV5-TP10, PV5-TP17, PV5-TP21, PV5-TP23, PV5-TP28, and PV5-TP31), with values ranging from 0% to 8%. However, the gravel content is substantially higher in the remaining samples, with values ranging from 31% to 72%. The silt content varies from 4.8% to 51.1%.

The material exhibits moderate plasticity, with liquid limit values ranging from 19% to 56%. However, the plasticity indices, which range from 3% to 22%, suggest that the samples may be classified as having high plasticity, in accordance with the criteria established by Anon, O.H. (1979) in Classification of Rocks and Soils for Engineering Geological Mapping. . However, it is important to note that six of the seventeen samples—specifically PV5-TP2, PV5-TP3, PV5-TP10, PV5-TP23, PV5-TP24, and PV5-TP32—exhibit no plasticity, with both liquid limit and plasticity index values equal to zero. The samples overall demonstrate low expansion potential according to Van der Merwe (1964). According to the USCS method, the material primarily classified as SM and SC.

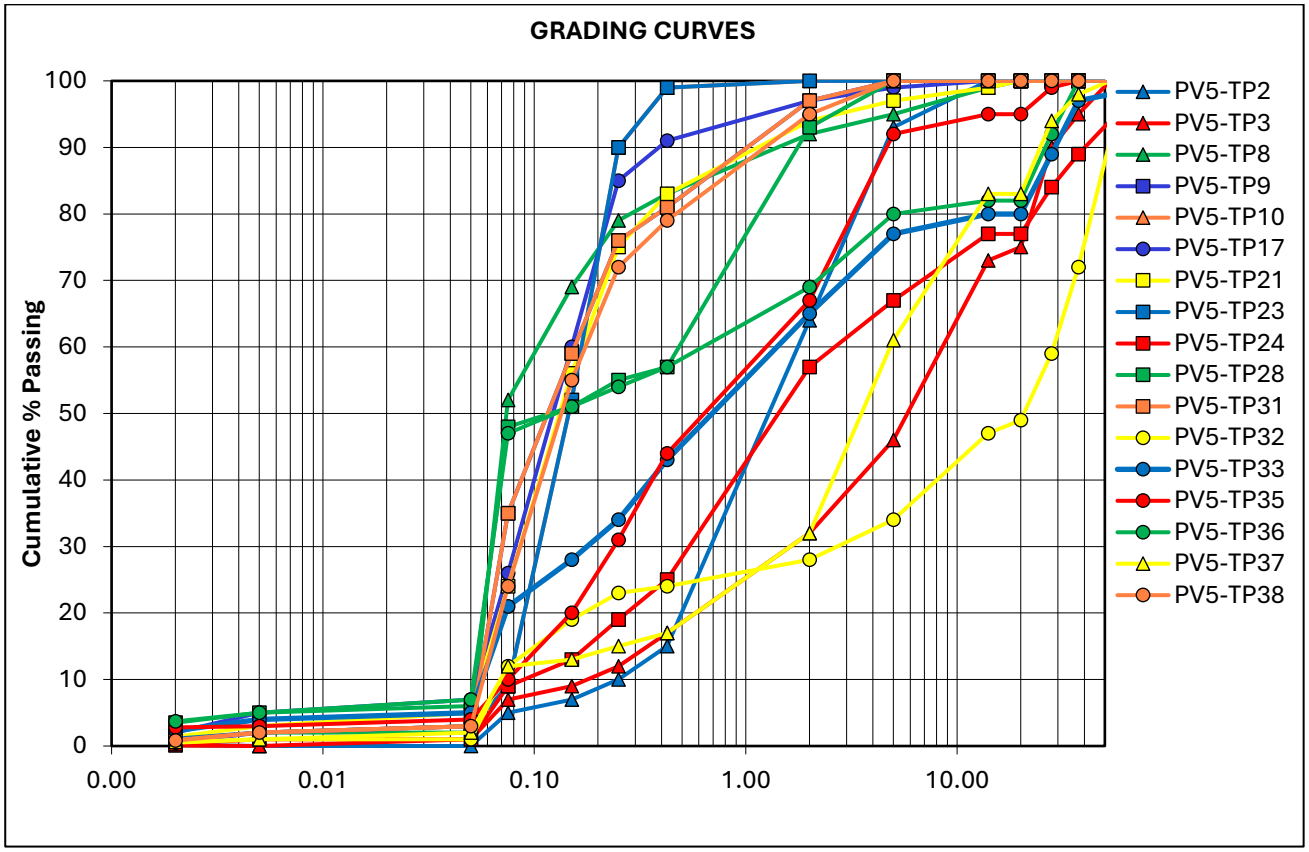


Figure 4-20: Grading Curves for Solar PV-5 samples

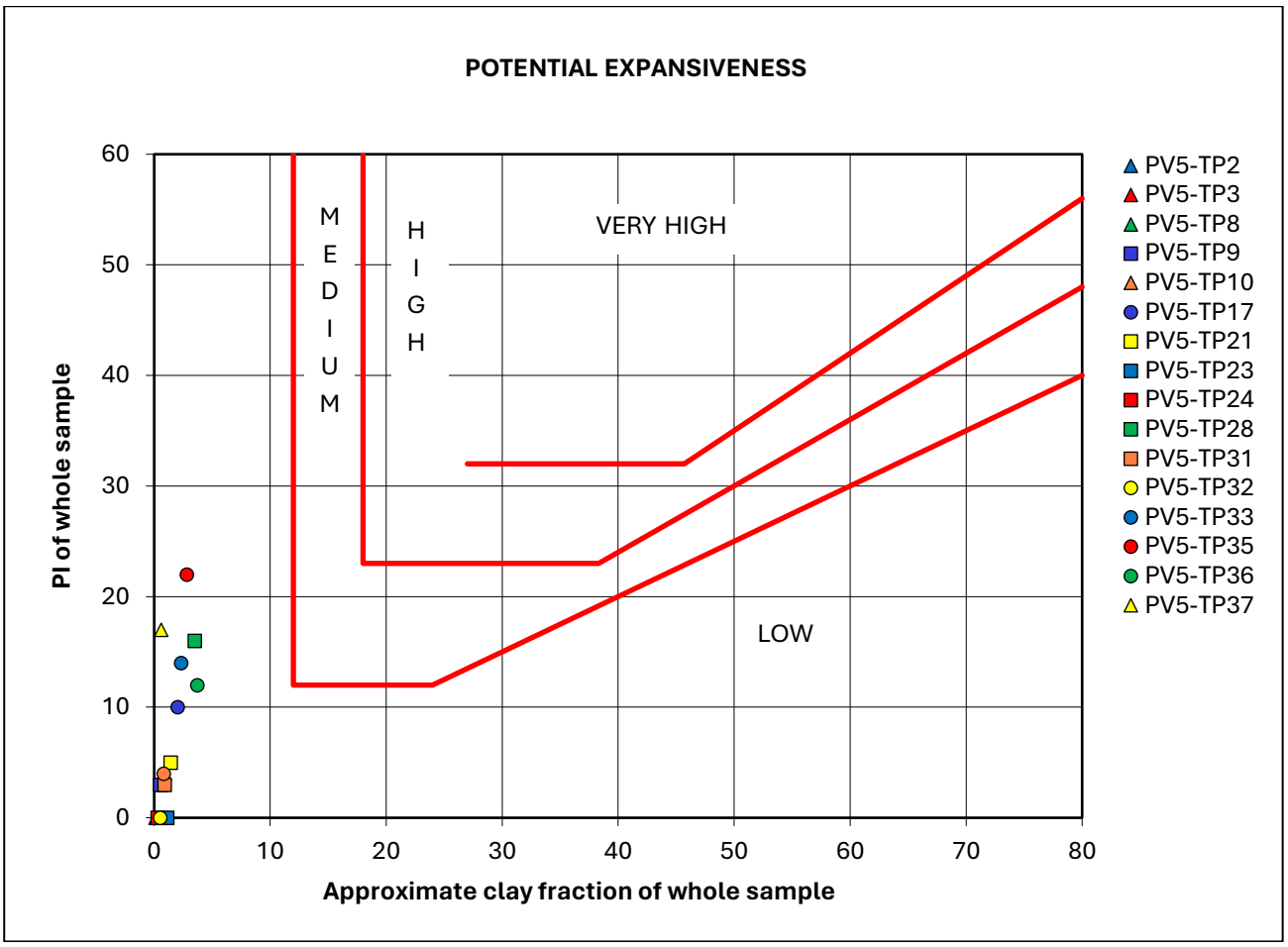


Figure 4-21: Potential expansiveness of Solar PV-5 Samples

4.5.2 Road Indicators

Foundation indicator tests were conducted to determine the grading and Atterberg Limits, California bearing ratio of the materials encountered for material classification purposes. The results are discussed below and are attached to Appendix D of this document.

4.5.2.1 Solar PV-1

The material in the samples shows considerable variability, with no single soil type dominating. The analysis reveals that the samples are predominantly sand, with sand content ranging from 40% to 73%. However, it is important to note that the sand content in PV1-TP33 is notably lower, at 11%, compared to the other samples. Gravel content also varies, with values ranging from 11% to 44%, while the clay and silt content fluctuates between 7% and 45%.

The material primarily exhibits low to moderate plasticity, with liquid limit values ranging from 21% to 39% and plasticity indices between 3% and 12%. Notably, the sample PV3-TP29 shows no plasticity, as both its liquid limit and plasticity index are recorded as zero.

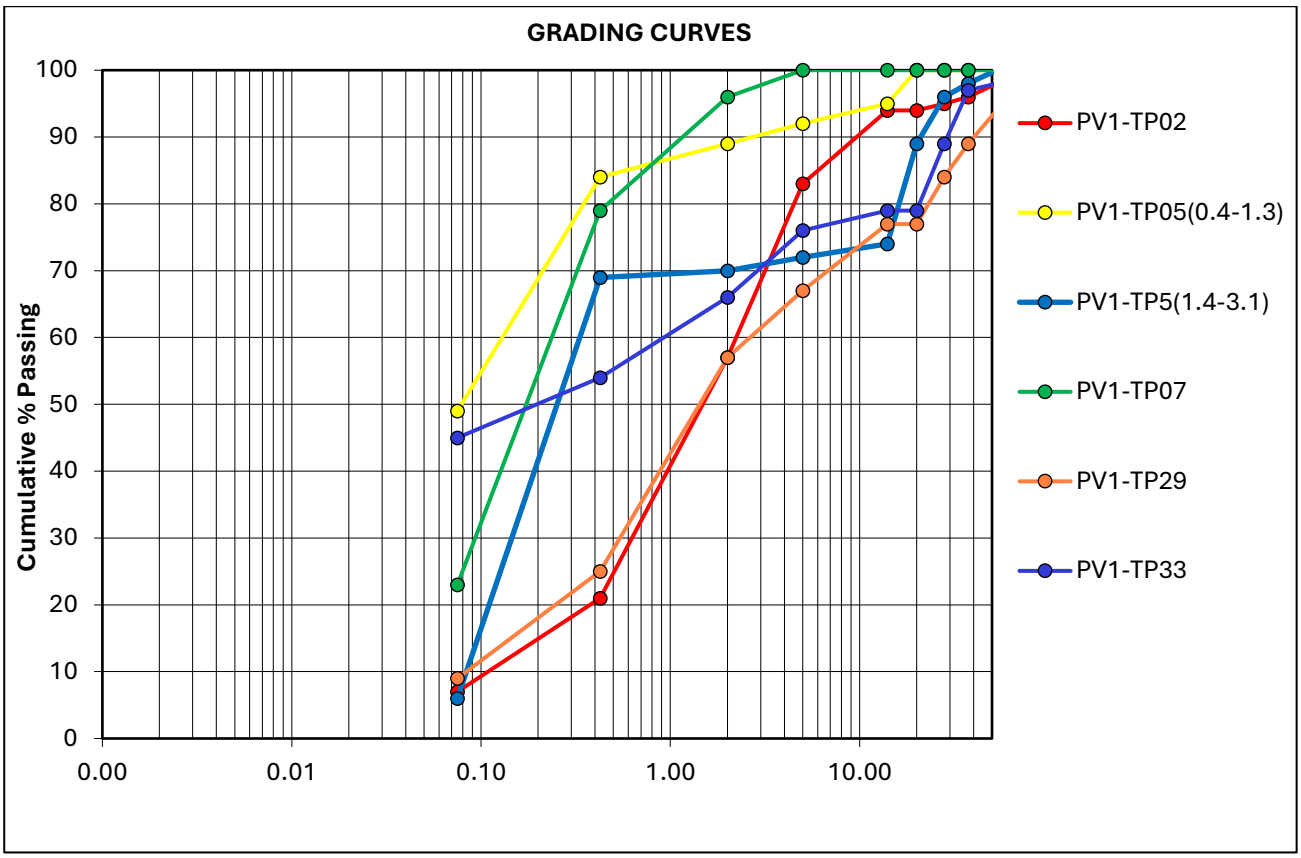


Figure 4-22: Grading Curves for Solar PV-1 samples

4.5.2.2 Solar PV-2

The material in the samples shows considerable variability, with no single soil type dominating. The results show that the material across the samples is predominantly sandy showing a sand content ranging between 39-81%. The clay and silt content varies across the samples ranging from 5% to 41%. The gravel content also shows variability with the content ranging between 0-46%.

The material primarily exhibits medium plasticity with liquid limit and plasticity index ranging from 22-48% and 6-15% respectively. It is worth noting that the sample obtained from PV2-TP13 exhibits no plasticity with the liquid limit and plasticity indices equalling zero.

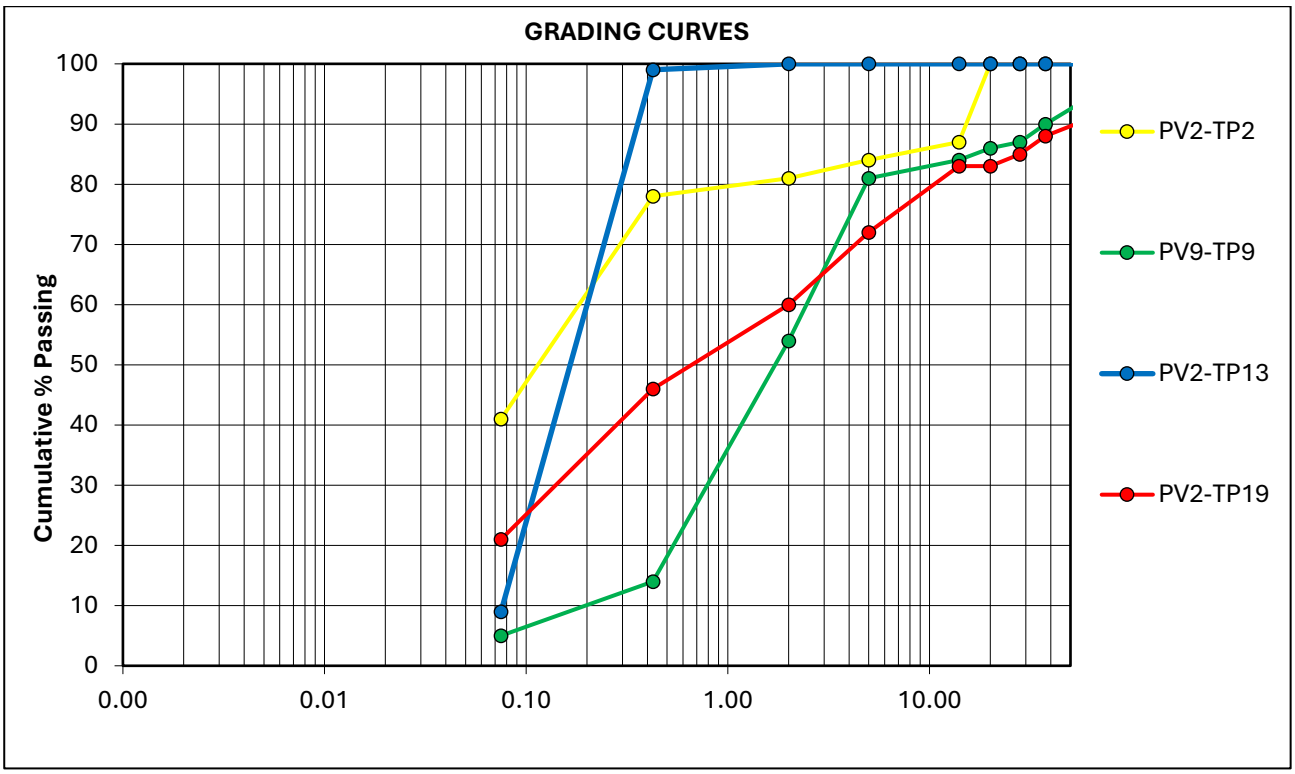


Figure 4-23: Grading Curves for Solar PV-2 samples

4.5.2.3 Solar PV-3

The material across the samples exhibits significant variability, with no predominant soil type. Sand content ranges from 21% to 75%, while clay and silt content also show considerable variation, ranging from 9% to 74%. Gravel content varies from 2% to 64%.

The material predominantly demonstrates medium to high plasticity, with liquid limit values ranging from 22% to 56% and plasticity indices ranging from 5 to 23%. However, it is important to note that the samples from PV3-TP15 and PV3-TP13 exhibit no plasticity, with both liquid limit and plasticity index values equal to zero.

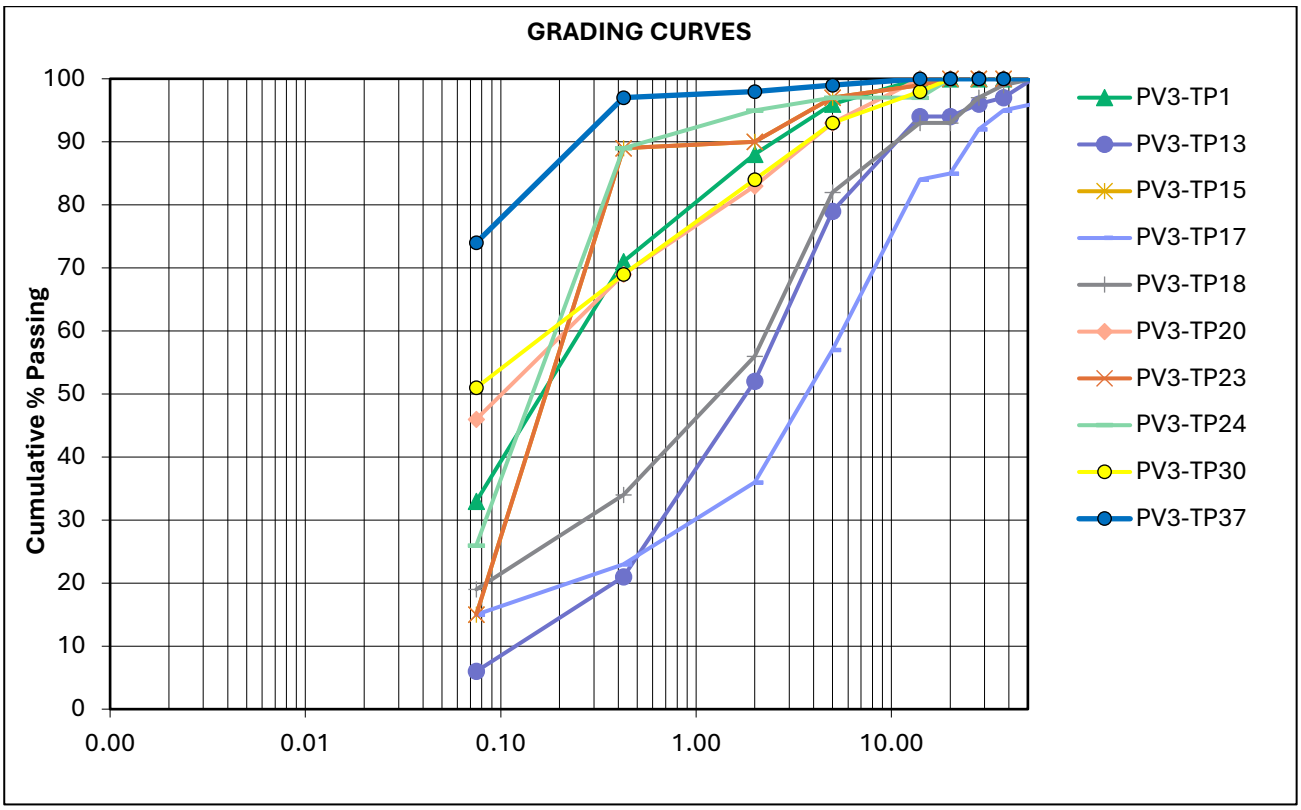


Figure 4-24: Grading Curves for Solar PV-3 samples

4.5.2.4 Solar PV-4

Two samples, one of gravelly sand and the other of soft rock shale, were collected for road indicator testing. The results reveal significant variability in gravel content, with PV4-TP21 showing a gravel content of 54% and PV4-TP7 displaying only 2%. The fines content in PV4-TP7 is notably high at 80%, compared to just 8% in PV4-TP21. Sand content in the two samples is also different, with PV4-TP7 containing 18% sand and PV4-TP21 containing 38%.

The sample from PV4-TP21 exhibits no plasticity, with both liquid limit and plasticity index values equal to zero, while the sample from PV4-TP7 is classified as high plasticity, with liquid limit and plasticity index values of 52% and 26%, respectively.

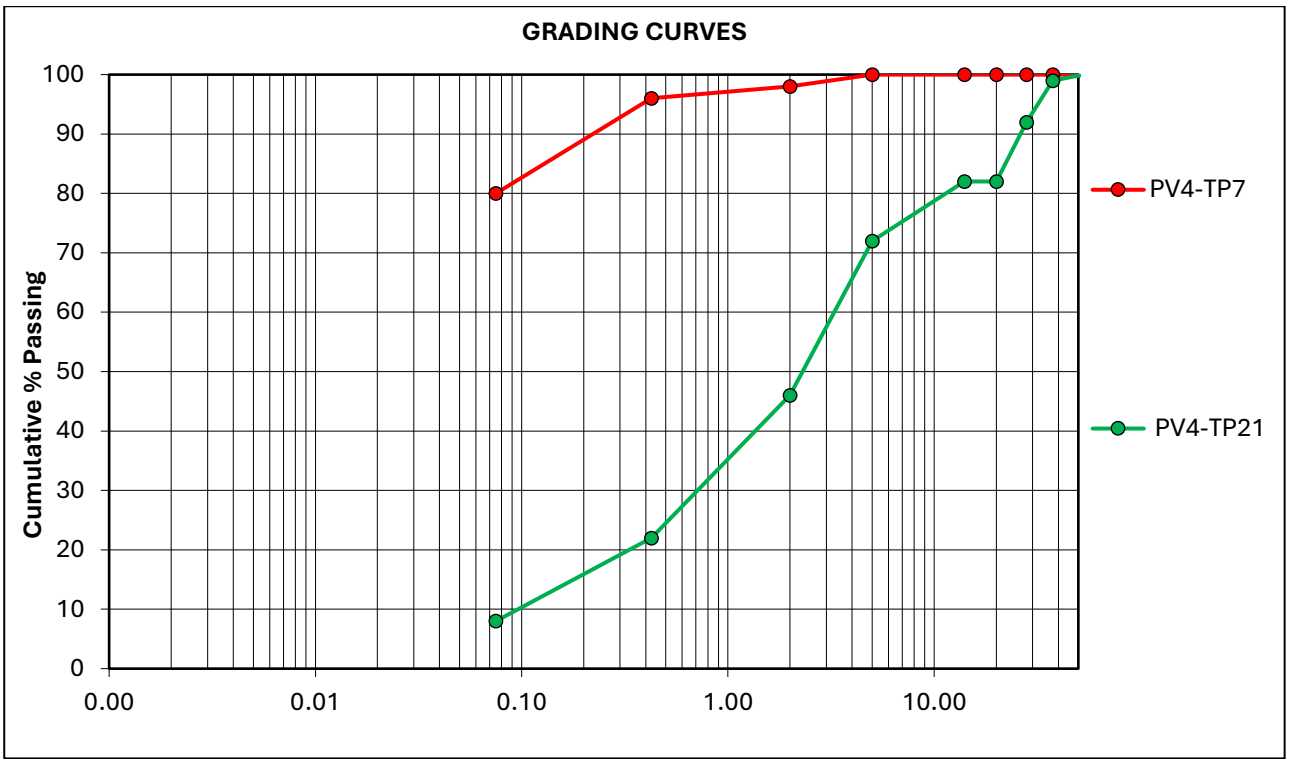


Figure 4-25: Grading Curves for Solar PV-4 samples

4.5.2.5 Solar PV-5

The material across the samples demonstrates considerable variability, with no dominant soil type. Gravel content varies significantly, ranging from 1% to 72%, while sand content ranges from 16% to 77%. Additionally, the combined clay and silt content ranges between 5% and 48%.

The material primarily exhibits low to medium plasticity, with liquid limit values ranging from 19% to 46% and plasticity index values ranging from 3% to 17%. It should be noted that samples PV5-TP3 and PV5-TP23 exhibit no plasticity with liquid limit and plasticity indices equal to zero.

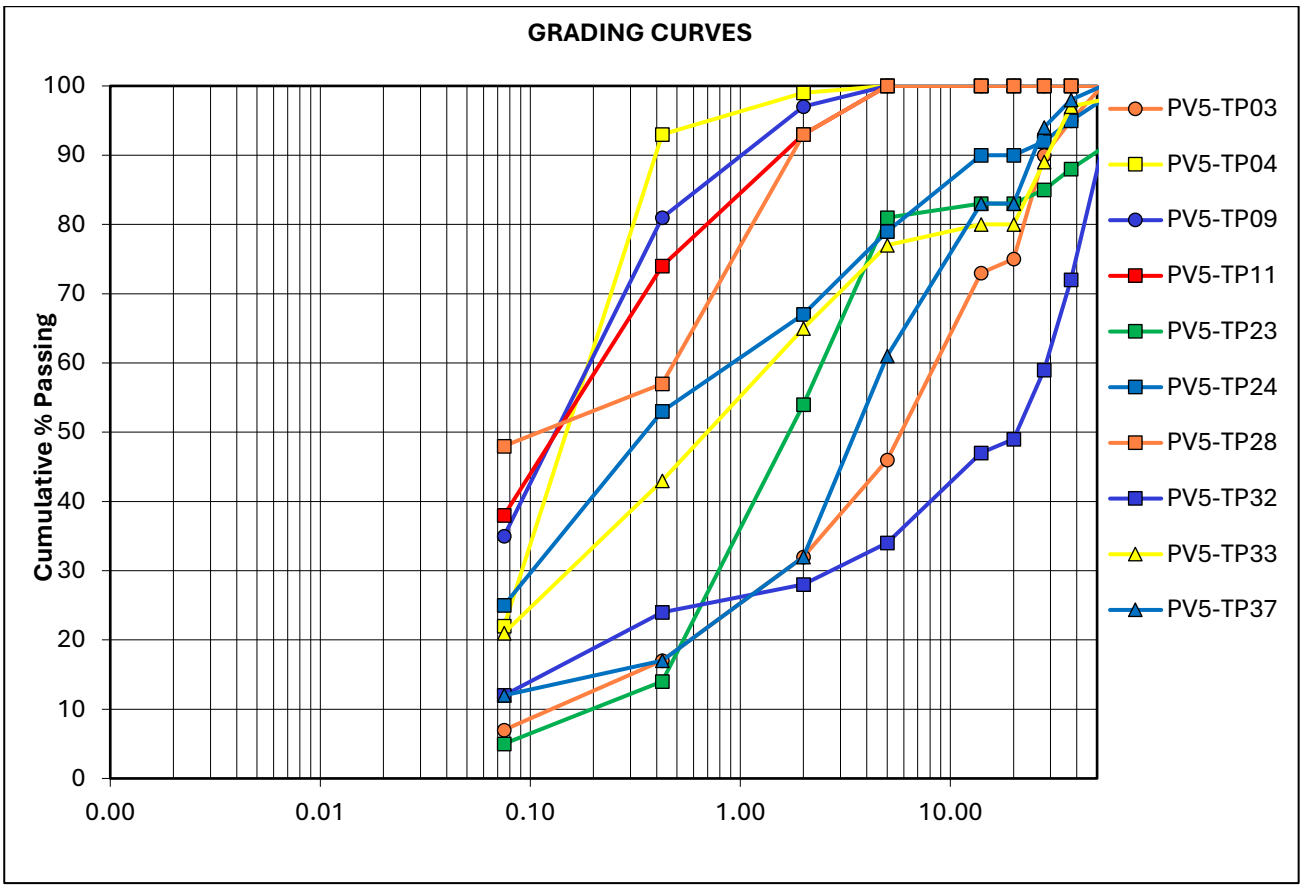


Figure 4-26: Grading Curves for Solar PV-5 samples

4.5.3 Compaction Results

Bulk samples recovered from the test pits were taken for testing to determine the material compaction properties and the results are summarised in Table 4-2 below and are attached to Appendix D of this document.

Table 4-2: Summary of Compaction Test Results

Material Origi	Compaction		California Bearing Ration (%)						Swell (%)	PI (%)	Class. COTO
	MDD (kg m^3)	OMC (%)	100	98	97	95	93	90			
Aeolian Sands	1669-2096	6.8-14.0	17-68	13-51	11-42	9-33	7-26	3-19	0.06-1.10	3-14	<G9-G6
Calcrete	1588-2263	5.8-14.8	16-57	13-54	11-53	9-50	7-47	3-44	0.02-1.50	6-16	<G9-G5
Residual Shale	1669-2030	7.9-14.1	22-35	17-28	15-25	12-21	10-17	7-13	0.16-0.46	7-26	<G9-G7
Dolerite Rock	1988-2160	3.7-7.6	26-52	23-42	22-36	18-32	15-29	10-26	0.09-1.20	3-11	G6-G7
Shale Rock	1700-2061	6.7-8.5	23-48	19-41	17-36	16-31	14-26	10-22	0.2-0.24	6-12	<G9-G7

Based on the above results, the Aeolian Sands are slightly to moderately plastic with a PI ranging between 3% and 14%, according to the COTO classification the material has been classified as ranging between <G9 to G6 quality. The residual shale material has the highest plasticity of the samples tested with a range of 7% to 26%, which would classify it as highly plastic according to the classification outlined by Anon (1979). According to the COTO classification this residual shale ranges between <G9 to G7 quality. The calcrete material shows the highest range of maximum dry density achieved as compared to the other samples exhibiting a range of 1558 kg/m3 to 2263 kg/m^3 and has been classified as <G9 to G5 quality.

4.5.4 Collapse Potential

Samples of silty sand and clayey sand were taken for testing to determine the problem associated with collapse as these soils can exhibit collapse behaviour. The results of the collapse potential are generally analysed using the guideline by Jennings and Knight (1975) per below and are attached to Appendix D of this document.

Table 4-3: Jennings and Knight (1975) guideline values for collapse potential

Collapse potential	Severity of problem
0% - 1%	No problem
1% - 5%	Moderate trouble
5% - 10%	Trouble
10% - 20%	Severe trouble
>20%	Very severe trouble

The results of the collapse potential test on the Aeolian Sands are summarised in Table 4 11 below. These results indicate that the samples recovered in the footprint of the proposed Solar PV's can be collapsible especially if the soils indicate a collapse fabric.

Table 4-4: Summary of collapse potential test

TP No.	Depth (m)	Description	Collapse Potential (%)	Severity of problem
PV1 TP13	0.2-0.5	Slightly moist, reddish - brown, medium dense, silty SAND with roots	6.53	Trouble
PV1-TP22	0.2-0.35	Slightly moist, reddish - brown, medium dense, silty SAND with roots	5.62	Trouble
PV5-TP33	0.1-0.2	Dry, light brown, medium dense, fissured, clayey SAND with roots	5.78	Trouble

4.5.5 BRE Test Results

BRE tests have been conducted to assess the aggressiveness of the in-situ soils to buried concrete. Aggressive ground refers to soil and water which react adversely with building material such as concrete. The chemical agents such as sulphate, when present in excessive quantities in the ground, can cause chemical attack (i.e., sulphate attack and acid attack) on the concrete. Samples were taken from site to assess the chemical agent concentration of the ground, and the results are summarised Table 4-5 below and are attached to Appendix D of this document .

Table 4-5: BRE Test results Notsi Solar PV

Analysis	TP ID					
	Units	PV2-TP17	PV3-TP19	PV4-TP3	PV5-TP74	PV5-TP4
Depth	m	0.0-0.4	0.9-1.5	0.5-1.1	0.5-1.4	0.0-0.6
Material Type	-	Clayey Sand	Gravelly Sand	Sandy Clay	Clayey Sand	Clayey Sand
Paste pH	-	7.1	8.7	8.4	7.8	6.9
Chloride as CL	Mg/l	4.0	43.0	3.0	500.0	2.0
	Mg/kg	8.0	86.0	6.0	1000.0	4.0
Sulphate as SO4	Mg/l	9.0	63.0	<2.0	2623.0	12.0
	Mg/kg	45.0	315.0	<4.0	5246.0	24.0
Nitrate as N	Mg/l	0.2	0.3	1.2	1.1	1.2
	Mg/kg	0.4	0.6	2.4	2.2	2.4

Analysis	TP ID					
	Units	PV2-TP17	PV3-TP19	PV4-TP3	PV5-TP74	PV5-TP4
Free & Saline Ammonia	Mg/l	<0.1	<0.1	<0.1	<0.1	<0.1
	Mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

The aggressiveness of the ground on concrete has been classified according to Table C1 below: Aggressive Chemical Environment for Concrete (ACEC) – provided in Figure 11 and Table D1: Selection of the DC Class) – provided in Figure 12 from the BRE Specification (BRE Special Digest 1, 2005)

Table C1 Aggressive Chemical Environment for Concrete (ACEC) classification for natural ground locations[a]

Sulfate				Groundwater		ACEC
Design Sulfate Class for location	2:1 water/soil extract[b]	Groundwater	Total potential sulfate[c]	Static water	Mobile water	Class for location
1	2 (SO_4 mg/l)	3 (SO_4 mg/l)	4 (SO_4 %)	5 (pH)	6 (pH)	7
DS-1	< 500	< 400	< 0.24	≥ 2.5		AC-1s
					> 5.5[d]	AC-1[d]
					2.5–5.5	AC-2z
DS-2	500–1500	400–1400	0.24–0.6	> 3.5		AC-1s
					> 5.5	AC-2
				2.5–3.5		AC-2s
					2.5–5.5	AC-3z
DS-3	1600–3000	1500–3000	0.7–1.2	> 3.5		AC-2s
					> 5.5	AC-3
				2.5–3.5		AC-3s
					2.5–5.5	AC-4
DS-4	3100–6000	3100–6000	1.3–2.4	> 3.5		AC-3s
					> 5.5	AC-4
				2.5–3.5		AC-4s
					2.5–5.5	AC-5
DS-5	> 6000	> 6000	> 2.4	> 3.5		AC-4s
				2.5–3.5	≥ 2.5	AC-5

Figure 4-27: Table C1 from the BRE Specification – reproduced as a figure. Results relevant to the site are indicated by the red polygon.

Table D1 Selection of the DC Class and the number of APMs for concrete elements where the hydraulic gradient due to groundwater is 5 or less: for general in-situ use of concrete[a,b,c]

ACEC Class (from Tables C1 and C2)	Intended working life: At least 50 years[d,e]	Intended working life: At least 100 years
AC-1s, AC-1	DC-1	DC-1
AC-2s, AC-2	DC-2	DC-2
AC-2z	DC-2z	DC-2z
AC-3s	DC-3	DC-3
AC-3z	DC-3z	DC-3z
AC-3	DC-3	DC-3 + one APM of choice
AC-4s	DC-4	DC-4
AC-4z	DC-4z	DC-4z
AC-4	DC-4	DC-4 + one APM of choice
AC-4ms	DC-4m	DC-4m
AC-4m	DC-4m	DC-4m + one APM of choice
AC-5z	DC-4z + APM3[f]	DC-4z + APM3[f]
AC-5	DC-4 + APM3[f]	DC-4 + APM3[f]
AC-5m	DC-4m + APM3[f]	DC-4m + APM3[f]

Figure 4-28: Table D1 from the BRE Specification – reproduced as a figure. Results relevant to the site are indicated by the red Polygon.

The highest Characteristic sulphate concentration across the samples was found to be equal to 2623.0 mg/l in PV4-TP7 and therefore dictates the design sulphate class, based on the above Table C1 the soil was assigned a design sulphate class DS-3. The pH values are all greater than 5.5, which corresponds to an ACEC class AC-3. At an assumed maximum 100 years' service life, the concrete class required for the site is DC-3+ one APM of choice as per Table D1 above.

4.5.6 DIN Test Results

DIN tests were performed to assess the corrosivity of soils on steel structures. The results of the DIN tests are summarised in Table 4 8. The conductivity of the soil has a profound influence on the rate of corrosion of buried metallic objects. Based on significance of soil resistivity on corrosivity, Duligal (1996) provides Table 4-6 for evaluation of the conductivity of soil. The test results are discussed below and are attached to Appendix D of this document.

Table 4-6: DIN Test results Notsi Solar PV

Analysis	Units	TP ID				
		PV1-TP7	PV2-TP19	PV3-TP3	PV4-TP7	PV5-TP4
Depth	m	0.0-0.4	0.9-1.5	0.5-1.1	0.5-1.4	0.0-0.6
Material Type	-	Clayey Sand	Gravelly Sand	Sandy Clay	Clayey Sand	Clayey Sand
pH	-	7.0	9.0	8.8	8.1	7.1
Electrical Conductivity at 25˚C	mS/m	12.9	44.5	15.3	495.0	16.0
Resistivity	(ohm.cm)	7752.0	2247.0	6536.0	202.0	6211.0
Alkalinity as $CaCO_3$	Mg/l	56.0	68.0	72.0	52.0	56.0
	Mg/kg	112.0	136.0	144.0	104.0	112.0

Analysis	Units	TP ID				
		PV1-TP7	PV2-TP19	PV3-TP3	PV4-TP7	PV5-TP4
Acidity as $CaCO_3$	Mg/l	8.0	<5.0	<5.0	28.0	12.0
	Mg/kg	16.0	<10.0	<10.0	56.0	24.0
Chloride as Cl	Mg/l	4.0	43.0	3.0	500.0	2.0
	Mg/kg	8.0	86.0	6.0	1000.0	4.0
Water Soluble Sulphate as SO4	Mg/l	<2.0	55.0	<2.0	2623.0	12.0
	Mg/kg	<4.0	110.0	<4.0	5246.0	24.0
Acid Soluble Sulphate as SO_4 *	Mg/l	9.0	63.0	150.0	2929.0	10.0
	Mg/kg	45.0	315.0	750.0	5246.0	24.0
Sulphide as S^{2-} *	Mg/l	28.0	10.7	3.3	11.3	0.7
	Mg/kg	56.0	21.0	6.6	23.0	1.4

Table 4-7: Guideline values for interpretation of soil conductivity (Duligal, 1996)

Soil Conductivity		
Soil conductivity (mS/m)	Soil resistivity (Ohm.cm)	Corrosivity classification
More than 50	0 – 2000	Extremely corrosive
25 – 50	2000 – 4000	Very corrosive
20 – 25	4000 – 5000	Corrosive
10 – 20	5000 – 10000	Mildly corrosive
Less than 10	>10000	Not generally corrosive

The conductivity results for the samples indicate that the material sampled at PV1-TP7, PV2-TP19, PV3-TP3 and PV5-TP4 exhibit conductivity values ranging from 12.9 to 44.5 mS/m. This suggests that the material varies from mildly corrosive to very corrosive. Notably, PV4-TP7 sample between depths of 0.5 and 1.1m displayed an exceptionally high conductivity of 495 mS/m, classifying the material as extremely corrosive. These classifications are based on the Duligal (1996) guideline.

Table 4-8: Classification of soils according to probability of free corrosion of unalloyed and low-alloy ferrous materials.

TP ID	Depth(m)	B1 Value	Probability of corrosion based on B1 Value	
			Wide or deep pitting corrosion	General Corrosion
PV1-TP7	0.0-0.4	-4	Low	Very Low
PV2-TP19	0.9-1.5	-10	Medium	Low
PV3-TP3	0.5-1.1	-8	Medium	Low
PV4-TP7	0.5-1.4	-23	High	Medium
PV5-TP4	0.0-0.6	+2	Very Low	Very Low

The probability of deep pitting corrosion is generally classified as medium for most of the samples, with the exception of PV4-TP7 at depths of 0.5-1.1m, which exhibits a high potential. This assessment aligns with the corrosion classifications presented in Table 3 above. The probability of general corrosion is predominantly low with a medium potential observed in OHL-TP05.

Table 2. **Classification of soils according to soil aggressiveness and probability of free corrosion of unalloyed and low-alloy ferrous materials**

B_0 or B_1 value	Soil category	Soil aggressiveness *) based on the B_0 value	Probability of corrosion based on the B_1 value	
			Wide or deep pitting corrosion	General corrosion
≥ 0	I a	Virtually not aggressive	Very low	Very low
-1 to -4	I b	Weakly aggressive	Low	Very low
-5 to -10	II	Aggressive	Medium	Low
< -10	III	Strongly aggressive	High	Medium

*) The soil aggressiveness corresponds to the probability of free corrosion in the absence of extensive concentration cells (see subclause 5.1.1).

4.5.7 Thermal Conductivity

The thermal conductivity of a soil is its ability to conduct heat. For the purpose of the solar farm, accurate measurement of this parameter is critical for the determination and design of the electrical cabling system. There are five main factors that increase a soil's capacity to conduct heat: namely:

- Mineralogy. Quartz sand with low mica content.
- Maximum dry density (MDD). High density after compaction.
- Grading. Well-graded soils with a high degree of grain interlock.
- Compaction moisture content. Compaction relative to optimum moisture content (OMC) without detriment to point (ii), and time. More specifically, the soil's ability to maintain a constant moisture content over time.

Given that thermal conductivity properties are mainly applicable to shallow soils surrounding and utilised within cable tranches, only the loose sand was assessed for thermal conductivity properties.

The soil across the samples is predominantly logged as sandy gravel. Laboratory testing confirms that the particle size distribution, i.e. the grading of the soil, is well-graded, allowing for a good degree of compaction, and hence high MDD results are achievable (~1970 kg/m^3) at an average Optimum moisture of 9.4%. It is observed that the thermal conductivity increases with increased moisture content and will peak at OMC, similarly it is anticipated that thermal conductivity will increase with increase in density and peak close to MDD. For comparative purposes, the "ideal" (SANS 10198-5, 2004) thermal conductivity of electrical cable bedding of 0.85 W/m.K (or a thermal resistivity of 1.2 K.m/ W) is indicated.

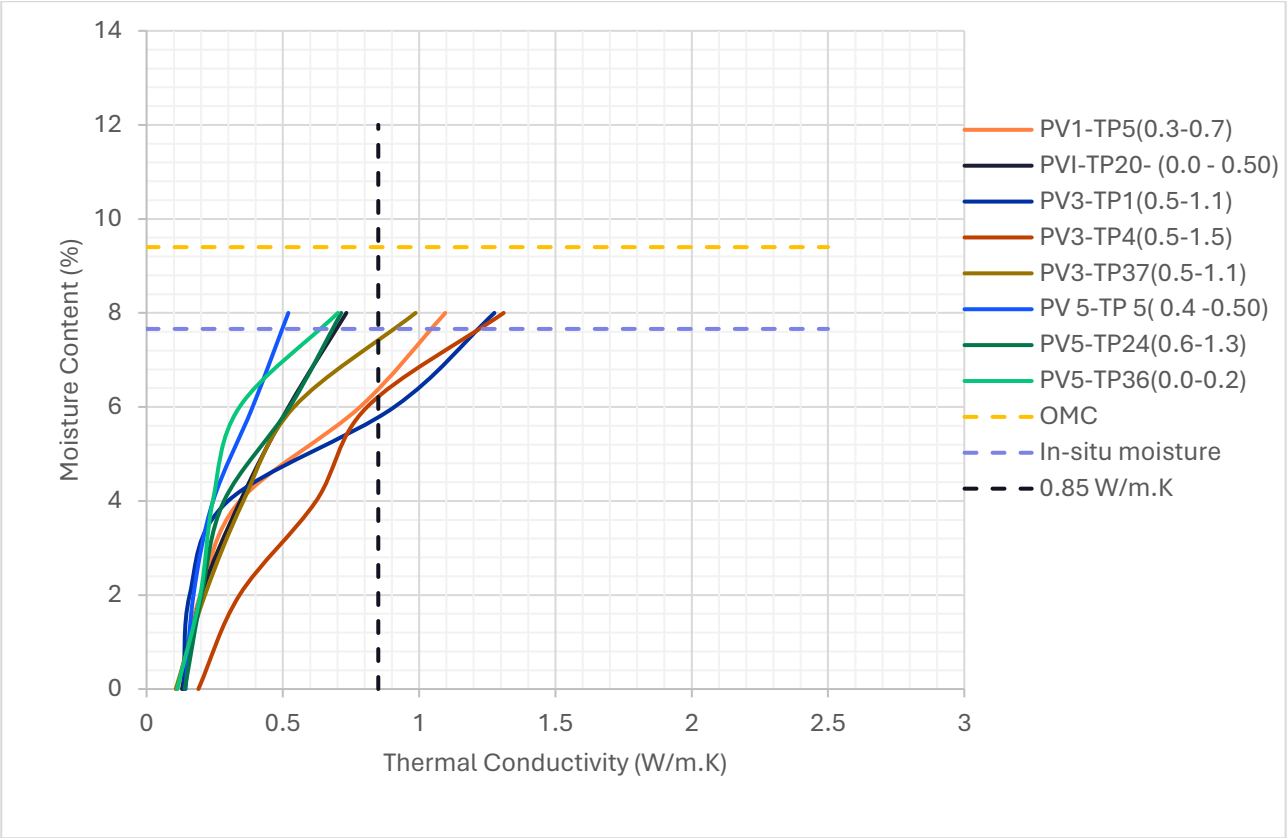


Figure 4-29: Analysis of the effects of moisture content on the thermal conductivity of the soil

4.5.8 Free Swell Test

A free swell test was conducted on two undisturbed samples recovered from PV3-TP5 and PV4-TP3 to assess the swelling potential of the material. The results are summarised in Table 4 9 and are attached to Appendix D of this document

Table 4-9:Summary of Free-Swell Test results

	PV3-TP5	PV4-TP3
Depth(m)	1.30-1.50	1.20-1.50
Material Type	Sandy Clay	Sandy Clay
Initial Moisture (%)	20.10	16.80
Final Moisture (%)	31.80	21.60
Void Ratio	0.787	0.552
Swell (%)	0.94	3.76

Based on the results presented, sample PV4-TP3 exhibits a significantly higher swelling potential compared to sample PV3-TP5, which measured values of 3.76% and 0.94%, respectively. According to the classification system proposed by O'Neill and Poormoayed (1980). Sample PV3-TP5 is classified as having marginal swell potential, while sample PV4-TP3 is classified as having high swell potential, based on the observed test results.

5. Geotechnical Considerations

5.1 Excavatability

In terms of excavatability, the excavations will classify as “soft excavation” conditions through to the soil overburden, weak calcrete and very soft rock bedrock. Excavation through this material will be achievable using conventional plant such as excavators. Excavations through hardpan calcrete and at least soft rock bedrock will classify as “intermediate excavation” condition which may necessitate the use of pneumatic tools.

5.2 Stability of Excavations

No unstable sidewalls were observed during excavation of test pits. However, deeper excavations will be considered unsafe therefore, battering or shoring of foundation trench excavations will need to be considered

5.3 Undermined Ground

There is no mining activity (underground or surface) in close proximity of the site as such undermining will not be a problem on this site.

5.4 Soil Corrosivity

The information provided by Laboratory indicates that the materials or ground conditions across the footprint of the proposed Solar PV’s are generally aggressive to strongly aggressive.

5.5 Construction Materials

In terms of materials on site, it is mainly the gravelly materials that are expected to be suitable for construction purposes. Based on the existing Kentani cluster results, the calcrete and dolerite bedrock generally classified as G5 – G7 materials therefore are suitable for earthworks such as fill, subgrade/ selected layerworks and stabilised layer works. In addition, the Laboratory tests results show that the Aelolian Sands, Calcrete and Dolerite rock material are superior quality materials to the residual shale and shale bedrock material, this is further supported by the COTO classification assigned to them as discussed in the chapter 4 above.

5.6 Problem Soils

The results obtained from the laboratory testing indicate that the footprint of the proposed Solar PV installation is underlain by problematic soils. Notably, expansive soil conditions were observed at location PV4-TP3, which exhibited a swelling potential of 3.76%. This characteristic should be carefully considered in the foundation design of the Solar PV structures.

Additionally, samples PV1-TP13, PV1-TP22, and PV5-TP33 demonstrated characteristics of collapsible soils, which may lead to significant settlement under loading. These findings highlight the need for appropriate geotechnical design measures to mitigate potential ground movement and ensure the long-term stability of the structures.

6. Recommendations

6.1 Foundation recommendations

6.1.1 Solar Panels

The solar PV panels are generally founded using pile solutions which can either be a driven pile solution or a predrilled solution. The driven pile solution is favoured where the ground profile allows driving of the pile generally between 1.5 m and 3.0 m and lacks any hard substrate or coarse material. The predrilled solution on the other hand, is suitable where the ground profile has shallow hard substrates including shallow bedrock. In the case of the Notsi PV site, the ground profile generally dictates a predrilled solution which is recommended herein for the founding of the solar panels.

6.1.2 Foundations for other structures

In terms of foundations for other structures, the profile across site with generally permit the use of shallow foundations. The must however be placed on at lease medium dense soils od directly on the hard surfaces described earlier in the report.

6.2 Access roads

The PV site is accessible through the existing graded S322 road and internally, through farm tracks or roads. It is anticipated that all roads will be upgraded to accommodate the proposed development.

7. Conclusions

Presented in this report are the findings of the geotechnical investigation for the proposed solar PV development. It is SMEC's belief that the level of information and discussions provided in this report are adequate at this stage and for this type of report. Further interpretations and recommendations will be provided once all the data including laboratory data and structural information is available. With that said, the following preliminary conclusions can be drawn from the available data:

- There are 3 no. typical profiles encountered covering the site, that is, soil only profile, calcrete-hardpan-bedrock and soil over rock profiles.
- In general, because of the calcretes and shallow bedrock, a predrilled pile solution will be required.
- "Soft excavations" conditions are expected through soils while "intermediate excavation" conditions will be expected below refusal depths.
- No groundwater was encountered during the current investigation, but fluctuations of the water table is expected.
- The ground conditions are likely to be corrosive to buried steel based on the results of the Kentani cluster results.
- In terms of material utilisation, mainly the course materials are considered suitable for construction. Good quality material can also be sourced in the borrow pits indicated nearby where G5 to G7 material can be expected.

8. References

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Appendix A Soil and Profiling Terminology

1. MOISTURE CONDITION	
Term	Description
Dry	
Slightly moist	Requires addition of water to reach optimum moisture content for compaction
Moist	Near optimum content
Very Moist	Requires drying to attain optimum content
Wet	Fully saturated and generally below water table

2. COLOUR
The predominant colours or colour combinations are described including secondary coloration described as banded, streaked, blotched, mottled, speckled or stained.

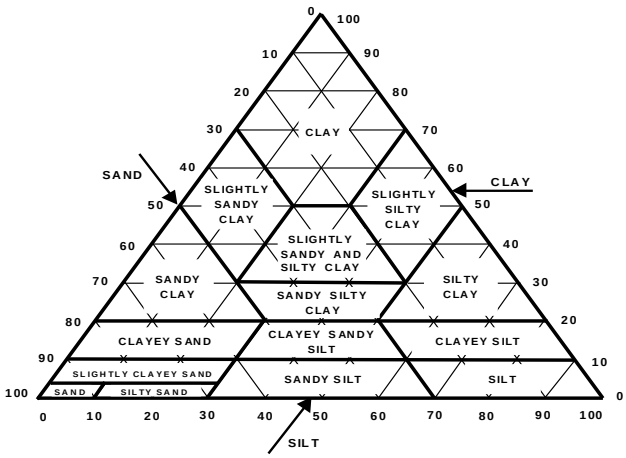
3. CONSISTENCY			
3.1 Non-Cohesive Soils		3.2 Cohesive Soils	
Term	Description	Term	Description
Very Loose	Very easy to excavate with a spade. 75 – 100 mm (full length) penetration of geological pick by pushing.	Very soft	Finger easily pushed in by up to 25 mm. Exudes between fingers.
Loose	Fairly easy to excavate with a spade or to penetrate with a crowbar. 25 – 75 mm penetration of geological pick by pushing.	Soft	Finger easily pushed in by up to 10 mm. Moulds with light finger pressure.
Medium Dense	Difficult to excavate with a spade or to penetrate with a crowbar. 10 – 25 mm penetration of geological pick by pushing.	Firm	Thumb makes impression easily. Cannot be moulded by fingers. Rolls in the to a 3-mm-thick thread without breaking or crumbling.
Dense	Very difficult to penetrate with a crowbar. Requires a pick for excavation. 2 – 10 mm penetration of geological pick by pushing.	Stiff	Can be indented slightly by thumb. Crumbles on rolling a 3 mm-thick thread but can then be remoulded into a lump.
Very Dense	Difficult to excavate with a pick. <2 mm penetration of geological pick by pushing.	Very Stiff	Can be indented slightly by thumbnail. Cannot be moulded. Crumbles under pressure.

4. STRUCTURE	
Term	Description
Intact	Absence of fissures or joints.
Fissured	Presence of closed joints.
Shattered	Presence of closely spaced air-filled joints giving cubical fragments.
Micro-shattered	Small scale shattering with shattered fragments the size of sand grains.
Slickensided	Polished planar surfaces representing shear movement in soil.
Bedded, Foliated	Many residual soils show structures of parent rock.

5. SOIL TYPE	
5.1 Particle Size	
Term	Size (mm)
Boulders	>200
Cobbles	63 – 200
Gravel	63 – 2
Sand	2 – 0,063
Silt	0,063 – 0,002
Clay	<0,002

6. ORIGIN	
6.1 Transported Soils	
Term	Agency of Transportation
Colluvium	Gravity deposits
Talus	Scree or coarse colluvium
Hillwash	Fine colluvium
Alluvial	River deposits
Aeolian	Wind deposits
Littoral	Beach deposits
Estuarine	Tidal – river deposits
Lacustrine	Lake deposits
6.2 Residual soils	
These are products of in-situ weathering of rocks and are described as e.g. Residual Shale	
6.3 Pedocretes	

5.2 Soil Classification

Formed in transported and residual soils etc. calcrete, silcrete, manganocrete and laterite.	

1. WEATHERING		
Term	Class	Diagnostic features
Residual or reworked	E	Matrix with occasional altered random or 'apparent' lithorelicts, bedding destroyed; classed as reworked when foreign inclusions are present as a result of transportation.
Destructed	D	Greatly weakened, mottled ordered lithorelicts in a matrix becoming weakened and disordered, bedding disturbed.
Distinctly Weathered	C	Further weakened, much closer fracture spacing, grey reduction.
Partially Weathered	B	Slightly reduced strength, slightly closer fracture spacing, weathering penetrating in from fractures, brown oxidation.
Unweathered	A	Original strength, colour, fracture spacing.

2. HARDNESS		
Classification	Field test	Compressive Strength Range (MPa)
Extremely Weak	Indented by thumbnail. Gravel sized lumps crush between finger and thumb.	0.6 – 1
Very Weak	Crumbles under firm blows with points of geological hammer, can be peeled by a pocket knife.	1 - 5
Weak	Can be peeled by a pocket knife with difficulty; shallow indentations made by firm blows with point of geological hammer.	5 - 25
Medium Strong	Cannot be scraped or peeled with pocket knife; specimen can be fractured with single firm blow of geological pick.	25 - 50
Strong	Specimen requires more than one blow of geological hammer to fracture it.	50 - 100
Very Strong	Specimen requires many blows of geological hammer to fracture it.	100 - 250
Extremely Strong	Specimen can only be chipped by geological hammer	>250

3. COLOUR
The predominant colours or colour combination are described including secondary colouration described as banded, streaked, blotched, mottled, speckled or stained.

4. FABRIC					
4.1 Grain Size		4.2 Discontinuity Spacing			
Term	Size (mm)	Description for: Bedding, foliation, laminations	Mean thickness (mm)	Descriptions for joints, faults, etc.	Spacing (mm)
Very Coarse	>2,0	Very thickly bedded	>2000	Very widely	>2000
Coarse	0,63 – 2,0	Thickly bedded	600 - 2000	Widely	600 - 2000
Medium	0,2 – 0,63	Medium bedded	200 - 600	Medium	200 - 600

Fine	0,063 – 0,2	Thinly bedded	60 -200	Closely	60 - 200
Very Fine	< 0,063	Very Thinly bedded	20 - 60	Very Closely	20 – 60
		Thickly laminated (Sedimentary) Narrowly (Metamorphic and Igneous)	6 - 20	Extremely Closely	<20
		Thinly laminated (Sedimentary) Very narrowly (Metamorphic and Igneous)	<6		

5. ROCK NAME		6. STRATIGRAPHIC HORIZON
Classified in terms of origin:		Identification of rock type in terms of stratigraphic horizons.
IGNEOUS	Granite, Diorite, Gabbro, Syenite, Diabase, Dolerite, Trachyte, Andesite, Basalt.	
METAMORPHIC	Slate, Quartzite, Gneiss, Schist,	
SEDIMENTARY	Shale, Mudstone, Siltstone, Sandstone, Dolomite, Conglomerate, Tillite, Quartzite, Limestone.	

Appendix B Soil Profiles

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP1**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3180939.52**
Proj. No.:	**PE310**	Northing (Y):	**62912.84**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish orange, loose to medium dense, fissured clayey SAND with roots. 0.35 m	Excavated as coarse sandy GRAVEL cobbles and boulders up to 0.3 m diameter.
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed, GRAVEL of weathered shale in a matrix of slightly moist, dark reddish - brown clayey sand. 0.6 m	
			SOFT ROCK SHALE Moderately weathered, greenish - grey stained reddish - orange, very thinly bedded, very highly fractured, very fine grained. 1.5 m	
			Test hole terminated at 1.5 m. Refusal in soft rock shale.	

Notes:
1. No groundwater seepage.
2. No sidewall collapse.
3. No samples obtained.

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S.Gina	Reviewer:	A. Nxumalo

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP2**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3180687.59**
Proj. No.:	**PE310**	Northing (Y):	**62651.69**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
1	#		**AEOLIAN SAND** Slightly moist, reddish - brown, medium dense, clayey SAND with roots. 0.4 m **SOFT ROCK DOLERITE** Highly weathered, yellowish brown speckled white and black, very highly fractured, fine to coarse grained. 1.3 m Test hole terminated at 1.3 m. Refusal in soft rock dolerite.	Excavated as gravelly sand and cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.4 m - 1.3m (FI+MOD+CBR).

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP3**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3180940.72**
Proj. No.:	**PE310**	Northing (Y):	**62661.64**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark red, loose, clayey sand with roots. 0.5 m STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented, gravelly SAND. 1 m Test hole terminated at 1.0 m. Refusal in very dense hardpan calcrete.	Excavated as sandy gravel cobbles and boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S.Gina	Reviewer:	A. Nxumalo

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP4**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181193.63**
Proj. No.:	**PE310**	Northing (Y):	**62660.79**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, medium dense, clayey sand. 0.35 m VERY SOFT ROCK DOLERITE Highly weathered, yellowish - brown, speckled white and black, very highly fractured, fine to coarse grained. 0.8 m Test hole terminated at 0.8 m. Refusal in soft rock dolerite.	Excavated as gravelly sand cobbles and boulders up to 0.3 m.

Notes:
1. No groundwater.
2. No sidewall collapse.
3.No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S.Gina	Reviewer:	A. Nxumalo

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP5**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181444.5**
Proj. No.:	**PE310**	Northing (Y):	**62665.33**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
2	#		**AEOLIAN SAND** Slightly moist, reddish - orange brown, medium dense, clayey SAND with. roots. 0.4 m	Excavated as gravel cobbles and boulders up to 0.4m diameter.
3	#		**RESIDUAL SHALE** Fine, sub-angular, closely packed shale GRAVEL in a matrix of slightly moist, greenish - grey, clayey sand. Overall consistency is dense. 0.7 m	
			SOFT ROCK SHALE Moderately weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 1 m	
			Test hole terminated at 1.0 m. Refusal in soft rock shale.	

Notes:
1. No groundwater seepage.
2. Minor sidewall collapse in upper 0.4 m.
3. Bulk sample at 0.0 - 0.4 m (FI+MOD+CBR) and 0.4 - 0.7 m (FI+MOD+CBR).
4. Thermal in-situ test @ 0.6 m.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-23	End:	2024-11-23
Plant:	CAT428F TLB	Logged By:	S.Gina	Reviewer:	A. Nxumalo

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP6**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181693.18**
Proj. No.:	**PE310**	Northing (Y):	**62411.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey sand with roots. 0.5 m	Excavated as sandy gravel and cobbles.
			VERY SOFT ROCK DOLERITE Highly weathered, yellowish - brown speckled black and orange, very highly fractured, fine to coarse grained. 1.2 m	
			Test hole terminated at 1.2 m. Refusal in very soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall seepage.
3. No samples obtained.

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Contractor: Roadlab (Pty) Ltd. Start: 2024-12-02 End: 2024-12-02
Plant: CAT428F TLB Logged By: S.Gina Reviewer:

RSLog / Notsi 475 MW Solar PV - Test Pit / smec-south-africa / admin / February 12, 2025 07:09 PM

AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP7**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181443.18**
Proj. No.:	**PE310**	Northing (Y):	**62415.52**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
4	#		**AEOLIAN SAND** Slightly moist, reddish-brown, medium dense, clayey SAND. 0.4 m **VERY SOFT ROCK DOLERITE** Highly weathered, yellowish brown speckled black, very highly fractured, fine to coarse grained. 0.9 m Test hole terminated at 0.9 m. Refusal in soft rock dolerite.	Excavated as gravelly sand with cobbles.

Notes:
1. No groundwater.
2. No sidewall seepage.
3. Bulk sample at 0.0 - 0.4 m (FI+MOD+CBR).

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT 428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP8**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181205.59**
Proj. No.:	**PE310**	Northing (Y):	**62413.18**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, medium dense, clayey SAND with roots. 0.7 m	
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented, gravelly SAND. 1.3 m	Excavated as gravelly sand with cobbles and small boulders.
			Test hole terminated at 1.3 m. Refusal in very dense hard pan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S.Gina	Reviewer:	A. Nxumalo

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP9**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181194.91**
Proj. No.:	**PE310**	Northing (Y):	**62161.56**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, dense, fissured, clayey SAND with roots. 0.6 m	
			SOFT ROCK DOLERITE Moderately to highly weathered, dark grey, stained orange, very highly fractured, fine to coarse grained. 0.8 m	Excavated as gravelly sand with cobbles and small boulders.
			Test hole terminated at 0.8 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP10**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181448.25**
Proj. No.:	**PE310**	Northing (Y):	**62163.31**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, medium dense to dense, fissured, clayey SAND with roots. 0.5 m	Excavated as gravelly sand with cobbles.
			SOFT ROCK DOLERITE Moderately weathered, dark grey stained orange and white, very highly fractured, fine to coarse grained. 0.7 m	
			Test hole terminated at 0.70 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP11**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181695.15**
Proj. No.:	**PE310**	Northing (Y):	**62163.06**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, medium dense, clayey SAND with roots. 0.3 m	Excavated as gravelly sand, cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white speckled black and yellow, very dense, strongly cemented, gravelly SAND. 0.6 m	Excavated as gravelly sand, cobbles and small boulders.
			SOFT ROCK DOLERITE Highly weathered, yellowish brown, very highly fractured, fine to coarse grained. 1 m	
			Test hole terminated at 1.0 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP12**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181947.61**
Proj. No.:	**PE310**	Northing (Y):	**62162.45**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish brown, dense, fissured, clayey SAND with roots. 0.6 m	Excavated as sandy gravel and cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, yellowish - brown, very dense, strongly cemented gravelly SAND. 0.6 m	Excavated as coarse sandy gravel, cobbles and small boulders.
			SOFT ROCK SHALE Moderately weathered, dark grey stained white and orange on joints, thinly bedded, very highly fractured, very fine grained. 1.5 m	
			Test hole terminated at 1.5 m. Refusal in soft rock shale.	

Notes:
1. No groundwater seepage.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP13**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181946.75**
Proj. No.:	**PE310**	Northing (Y):	**61910.47**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
5	■		**AEOLIAN SAND** Slightly moist, reddish - brown, medium dense, silty SAND with roots. 1.1 m	
6	○		**MODERATELY CEMENTED CALCRETE** Slightly moist to moist, white, medium dense, moderately cemented, gravelly SAND. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Block sample at 0.25 - 0.5 m (FI+CP) and Indicator sample at 1.1 - 3.1 m (FI).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP14**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181693.86**
Proj. No.:	**PE310**	Northing (Y):	**61914.39**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish brown, medium dense, clayey SAND with roots. 0.5 m	Excavated as gravelly sand with cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white speckled black, very dense, strongly cemented, gravelly SAND. 0.9 m	
			Test hole terminated at 0.9 m. Refusal in very dense, strongly cemented hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP15**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181448.15**
Proj. No.:	**PE310**	Northing (Y):	**61914.8**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, loose, clayey SAND with roots. 0.15 m	Excavated as gravelly sand with cobbles and boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white stained orange, very dense, strongly cemented, gravelly SAND. 0.4 m	
			Test hole terminated at 0.4 m. Refusal in very dense, hardpan calcrete.	

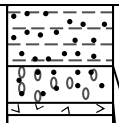
Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP16**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181189.99**
Proj. No.:	**PE310**	Northing (Y):	**61909.26**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			**AEOLIAN SAND** Dry to slightly moist, dark reddish - brown, dense, fissured, clayey SAND with roots. 0.5 m	Excavated as sandy gravel.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white stained orange, very dense, strongly cemented, gravelly SAND. 0.8 m	Excavated as sandy gravel.
			SOFT ROCK DOLERITE Highly weathered, yellowish orange, very highly fractured, fine to coarse grained. 0.9 m	
			Test hole terminated at 0.9 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP17**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181190.7**
Proj. No.:	**PE310**	Northing (Y):	**61658.26**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, medium dense, clayey SAND with roots. 0.4 m	Excavated as coarse sandy gravel and cobbles.
			RESIDUAL SHALE Fine to medium, sub - angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, yellowish brown sandy clay. 0.8 m	
			SOFT ROCK SHALE Moderately weathered, dark grey stained orange - brown, very thinly bedded, very highly fractured, very fine grained. 2 m	
			Test hole terminated at 2.0 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-06 End: 2024-12-06
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP18**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181441.54**
Proj. No.:	**PE310**	Northing (Y):	**61665.66**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, medium dense, fissured, clayey SAND with roots. 0.3 m	
			MODERATELY CEMENTED CALCRETE Dry, white stained orange, very dense, moderately cemented gravelly SAND. 1.1 m	Excavated as coarse sandy gravel.
			SOFT ROCK SHALE Moderately weathered, dark grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 2.1 m	
			Test hole terminated at 2.1 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP19**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181693.71**
Proj. No.:	**PE310**	Northing (Y):	**61665.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, dense, clayey SAND with roots. 0.7 m	
			SOFT ROCK DOLERITE Highly weathered, yellowish brown speckled black, very highly fractured, fine to coarse to grained. 0.9 m	Excavated as gravelly sand and cobbles.
			Test hole terminated at 0.9 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP20**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181948.43**
Proj. No.:	**PE310**	Northing (Y):	**61660.98**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
7	#		**AEOLIAN SAND** Slightly moist, reddish brown, loose, clayey SAND with. roots. 0.5 m **STRONGLY CEMENTED HARDPAN CALCRETE** Dry, white, very dense, strongly cemented gravelly SAND. 0.7 m **SOFT ROCK SHALE** Highly to moderately weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 3 m Test hole terminated in soft rock shale @ 3.0 m.	Excavated as gravelly sand and cobbles. Excavated as fine to medium sandy gravel.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.5 m (Thermal).
4. In-situ thermal resistivity test at 0.5 m.

smec an Su company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-23	End:	2024-11-23
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP21**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181946.75**
Proj. No.:	**PE310**	Northing (Y):	**61409.03**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, loose, clayey SAND with minor roots. 0.1 m **STRONGLY CEMENTED HARDPAN CALCRETE** Dry, white, very dense, strongly cemented gravelly SAND. 0.2 m Test hole terminated at 0.2 m. Refusal in very dense, strongly cemented hardpan calcrete.	Excavated as gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP22**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181445.2**
Proj. No.:	**PE310**	Northing (Y):	**61414.62**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
8	[■]		**AEOLIAN SAND** Slightly moist, reddish - brown, medium dense, silty SAND with roots. 0.9 m	Excavated as gravelly sand with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white and reddish - brown, very dense, strongly cemented gravelly SAND. 1.2 m	
			Test hole terminated at 1.2 m. Refusal in very dense hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Block sample at 0.20 - 0.35 m (FI+CP)

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP23**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181185.7**
Proj. No.:	**PE310**	Northing (Y):	**61408.24**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish brown speckled white, medium dense, fissured, clayey SAND. 1.5 m	
			MODERATELY CEMENTED CALCRETE Dry, white speckled grey dense, medium dense, moderately cemented gravelly SAND. 1.7 m	Excavated as fine to medium sandy gravel.
			SOFT ROCK SHALE Moderately weathered, dark grey stained white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater seepage.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP24**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181431.88**
Proj. No.:	**PE310**	Northing (Y):	**61164.79**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - orange, medium dense, clayey SAND with roots. 0.7 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, white stained greenish - brown, stiff, shattered gravelly CLAY. Gravel consists of fine, sub - angular, abundant dolerite and calcrete. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-05	End:	2024-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP25**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181684.58**
Proj. No.:	**PE310**	Northing (Y):	**60935.64**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, light brown, medium dense, fissured clayey SAND with roots. 0.3 m	
			MODERATELY CEMENTED CALCRETE Dry, white and reddish orange, dense clayey gravelly SAND. Gravel consists, fine, angular, abundant shale and calcrete. 0.9 m	
			RESIDUAL SHALE Slightly moist, greenish - brown stained orange and white, very stiff, shattered and relic jointed gravelly CLAY. Gravel consists fine to medium, sub - angular, abundant shale and calcrete. 1.6 m	Excavated as coarse sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Highly weathered, olive green and brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-05	End:	2024-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP26**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181932.38**
Proj. No.:	**PE310**	Northing (Y):	**60938.02**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, brown, medium dense, clayey SAND with roots. 0.5 m	Excavated as gravelly sand with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 1 m	Excavated as fine to coarse sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Highly weathered, greenish - brown, stained white and orange, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-05 End: 2024-12-05
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP27**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181927.09**
Proj. No.:	**PE310**	Northing (Y):	**60686.05**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, brown, medium dense, fissured, clayey SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, white stained reddish orange, medium dense, weakly cemented clayey gravelly SAND. 0.5 m	
			RESIDUAL SHALE Slightly moist, greenish - brown stained orange and white, stiff, shattered, gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale. 2.2 m	Excavated as coarse sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Highly weathered, greenish - brown stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP28**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181681.38**
Proj. No.:	**PE310**	Northing (Y):	**60685.76**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, silty SAND with roots. 0.3 m	
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 1.3 m	Excavated as gravelly sand.
			VERY SOFT ROCK DOLERITE Highly weathered, yellowish - brown speckled black, very highly fractured, fine to coarse grained. 2.2 m	
			Test hole terminated at 2.2 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-05 End: 2024-12-05
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP29**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181429.92**
Proj. No.:	**PE310**	Northing (Y):	**60685.75**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
9	#		**AEOLIAN SAND** Dry, reddish - brown, loose, silty SAND with minor roots. 0.7 m	Excavated as gravelly SAND. Excavated as gravelly sand with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, speckled black and yellow, very dense strongly cemented, gravelly SAND. 0.9 m	
			VERY SOFT ROCK DOLERITE Highly weathered, yellowish orange, very highly fractured, fine to coarse grained. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample 0.9 - 3.0 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-05	End:	2023-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP30**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181428.23**
Proj. No.:	**PE310**	Northing (Y):	**60436.97**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, clayey SAND with roots. 0.3 m	
			RESIDUAL SHALE Slightly moist, reddish - orange stained white, stiff, shattered, sandy CLAY with minor fine shale gravel. 1.3 m	Excavated as fine to coarse sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, greenish - grey stained white, very thinly bedded, very highly fractured, very fine grained. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-05 End: 2024-12-05
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP31**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181677.09**
Proj. No.:	**PE310**	Northing (Y):	**60436.43**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, orange - brown, medium dense, clayey SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Dry, reddish - orange speckled and stained white, stiff, gravelly sandy CLAY. Gravel consists fine angular abundant calcrete and shale. 2.2 m	
			RESIDUAL SHALE Slightly moist, greenish - brown, very stiff, gravelly CLAY. Gravel consists, fine to medium, sub - angular, abundant shale. 2.5 m	Excavated as fine to coarse sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, greenish - brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP32**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181928.96**
Proj. No.:	**PE310**	Northing (Y):	**60430**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, orange - brown, loose, clayey SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, white stained reddish - orange, stiff, gravelly CLAY. Gravel consists of fine, angular abundant calcrete and shale. 1.6 m	
			RESIDUAL SHALE Slightly moist, greenish - brown stained white, stiff, gravelly CLAY. Gravel consists fine to medium sub - angular abundant shale. 2 m	Excavated as coarse sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Highly weathered, greenish - brown stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP33**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181677.3**
Proj. No.:	**PE310**	Northing (Y):	**60183.16**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
10	#		**AEOLIAN SAND** Dry, light brown, medium dense, fissured, clayey SAND with roots. 0.4 m **WEAKLY CEMENTED CALCRETE** Dry to slightly moist, white, dense, fissured, clayey gravelly SAND. 0.7 m **VERY SOFT ROCK SHALE** Highly weathered, olive green stained black and white, very thinly bedded, very highly fractured. very fine grained. 3 m Test hole terminated in soft rock shale @ 3.0 m maximum reach.	Excavated as fine to medium gravel and cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.7 - 3.0 m (FI+MOD+CBR).
4. In-situ thermal resisting @ 0.9 m.

smec an Su company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-22	End:	2024-12-22
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP34**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181426.41**
Proj. No.:	**PE310**	Northing (Y):	**60182.12**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey SAND with roots. 0.4 m	
			WEAKLY CEMENTED CALCRETE Dry, white stained reddish - orange, very stiff, shattered sandy CLAY with minor fine gravel. 1.3 m	Excavated as sandy gravel cobbles and small boulders.
			RESIDUAL SHALE Slightly moist, greenish - brown stained white and orange, very stiff, shattered, gravelly CLAY. Gravel consists fine to medium, sub - angular, abundant shale and calcrete. 2 m	
			VERY SOFT ROCK SHALE Highly weathered, greenish - brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-05	End:	2024-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP35**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181174.01**
Proj. No.:	**PE310**	Northing (Y):	**60179.22**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey SAND with roots. 0.5 m	
			MODERATELY CEMENTED CALCRETE Dry, white stained reddish - orange, dense moderately cemented gravelly SAND. 0.9 m	
			RESIDUAL SHALE Slightly moist, greenish - brown stained orange and white, very stiff, shattered, gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-05	End:	2023-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP36**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3180927.35**
Proj. No.:	**PE310**	Northing (Y):	**59922.04**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, medium dense, clayey SAND with minor fine gravel and roots. 0.1 m	
			RESIDUAL SHALE Fine to medium, sub - rounded, closely packed gravel of weathered dolerite in a matrix of slightly moist, reddish orange silty sand. Overall consistency is very dense. 1 m	Excavated as sandy gravel and cobbles.
			MEDIUM HARD ROCK SHALE Slightly weathered, dark grey/ purple stained orange, thinly bedded, very highly fractured, very fine grained. 1.2 m	
			Test hole terminated at 1.2 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-05	End:	2024-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV1 TP37**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181179.84**
Proj. No.:	**PE310**	Northing (Y):	**59923.43**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, loose, clayey sand with roots. 0.2 m	Excavated as sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Highly to moderately weathered, dark grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 1.3 m	
			Test hole terminated at 1.3 m on soft rock shale due to major sidewall collapse.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-05	End:	2024-12-05
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP1**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182189.81**
Proj. No.:	**PE310**	Northing (Y):	**60892.23**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, brown, medium dense, clayey SAND with minor gravel and roots. 0.1 m	Excavated as gravelly sand with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 0.9 m	
			RESIDUAL SHALE Slightly moist, greenish - brown stained white, very stiff, shattered gravelly CLAY. 2.4 m	
			RESIDUAL SHALE Fine to coarse, sub - angular, closely packed highly weathered shale gravel in a matrix of slightly moist, greenish - brown, sandy silty clay. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP2**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182443.05**
Proj. No.:	**PE310**	Northing (Y):	**60895.19**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
11	#		**AEOLIAN SAND** Dry, reddish brown speckled white, medium dense, clayey SAND with minor roots and minor fine shale gravel. 1.4 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, white, medium dense, weakly cemented, gravelly SAND. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 1.4 - 3.1 m (FI+MOD+CBR)

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP3**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182696.93**
Proj. No.:	**PE310**	Northing (Y):	**60888.84**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, brown, medium dense, fissured, clayey SAND with roots. 0.3 m	Excavated as coarse gravel, cobbles and boulders up to 0.4 m diameter.
			RESIDUAL SHALE Slightly moist, reddish - orange, speckled and stained white, stiff, shattered gravelly CLAY. Gravel consists fine to medium, sub - angular shale. 0.6 m	
			MEDIUM HARD ROCK SHALE Slightly weathered, dark grey stained white, thinly bedded, very highly fractured, very fine grained. 1.1 m	
			Test hole terminated at 1.1 m. Refusal in medium hard rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP4**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182699.04**
Proj. No.:	**PE310**	Northing (Y):	**61140.28**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, brown, medium dense, clayey SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Dry, white and reddish orange, medium, clayey gravelly SAND. 1.2 m	
			VERY SOFT ROCK SHALE Highly weathered, greenish - grey stained white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	Excavated as coarse sandy gravel and cobbles.
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP5**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182444.93**
Proj. No.:	**PE310**	Northing (Y):	**61145.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, dark brown, medium dense, clayey SAND with roots. 0.1 m	Excavated as gravelly sand with cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white speckled black stained orange, very dense, strongly cemented gravelly SAND. 0.6 m	Excavated as gravely sand with cobbles.
			SOFT ROCK DOLERITE Highly weathered, yellowish orange, very highly fracture, fine to coarse grained. 1.7 m	
			Test hole terminated at 1.7 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP6**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182191.76**
Proj. No.:	**PE310**	Northing (Y):	**61144.55**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, dark brown, medium dense, fissured, clayey SAND with roots. 0.3 m	
			MODERATELY CEMENTED CALCRETE Dry, white, dense, moderately cemented gravelly SAND. 1.2 m	
			RESIDUAL SHALE Fine to medium, sub - angular, closely packed GRAVEL of weathered shale in a matrix of slightly moist, yellowish - brown and whitey clayey silty sand. Overall consistency is dense. 1.7 m	Excavated as coarse sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, greenish - grey stained white, very thinly bedded, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. Major sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP7**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182193.88**
Proj. No.:	**PE310**	Northing (Y):	**61393.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown, medium dense, clayey SAND. 0.5 m	
			WEAKLY CEMENTED CALCRETE Dry, white stained orange, medium dense, weakly cemented gravelly SAND. 2 m	
			RESIDUAL SHALE Slightly moist, greenish brown stained white, firm, gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale. 3 m	
			Test hole terminated at 0.9 m. refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP8**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182444.67**
Proj. No.:	**PE310**	Northing (Y):	**61389.7**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark brown, medium dense, fissured, clayey SAND with roots. 0.2 m	Excavated as gravelly sand with cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry white, very dense, strongly cemented gravelly SAND. 0.6 m	
			Test hole terminated at 0.6 m. Refusal in strongly cemented hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP9**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182703.42**
Proj. No.:	**PE310**	Northing (Y):	**61391.31**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, orange - brown, medium dense, clayey SAND with roots and minor fine gravel. 0.3 m	
			RESIDUAL SHALE Slightly moist, reddish - orange, stiff, shattered, gravelly CLAY. Gravel consists fine, sub - angular, abundant shale. 1.9 m	
12	#		**VERY SOFT ROCK SHALE** Highly weathered, greenish - brown, stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	Excavated as coarse sandy gravel and cobbles.
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

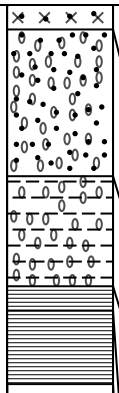
Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 1.9 - 3.1 m (FI+MOD+CBR)

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2023-12-04	End:	2023-12-04
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP10**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182702.11**
Proj. No.:	**PE310**	Northing (Y):	**61641.47**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			**AEOLIAN SAND** Dry, light brown, loose, silty SAND with roots. 0.2 m **WEAKLY CEMENTED CALCRETE** Slightly moist, white and yellowish - brown, medium dense, weakly cemented gravelly SAND. Gravel consists of fine to medium, angular abundant calcrete. 1.4 m **RESIDUAL SHALE** Slightly moist, greenish - brown, stained white, very stiff, shattered CLAY. Gravel consists of fine to medium, sub-angular abundant shale. 2.5 m **RESIDUAL SHALE** Fine to medium, sub-angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, greenish - brown sandy clay. Overall consistency is a very dense. 2.5 m **SOFT ROCK SHALE** Highly weathered, greenish - brown stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as coarse sandy gravel. Also contains minor rounded dolerite cobbles at base.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samplers obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP11**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182447.71**
Proj. No.:	**PE310**	Northing (Y):	**61642.38**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, orange-brown, loose, silty SAND with roots. 0.2 m	
			MODERATELY CEMENTED CALCRETE Dry white stained yellowish-brown, dense, moderately cemented gravelly SAND. Gravel consists of fine to medium, angular, abundant calcrete. 2.1 m	
			RESIDUAL SHALE Fine to medium, sub-angular, closely packed GRAVEL of weathered shale in a matrix of slightly moist, white, clayey sand. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT 428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP12**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182197.8**
Proj. No.:	**PE310**	Northing (Y):	**61644.66**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - orange, medium dense to dense, fissured clayey SAND with minor fine gravel. 1.3 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed GRAVEL and COBBLES of highly weathered shale in a matrix of slightly moist, yellowish - brown sandy clay. Overall consistency is dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP13**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182199.62**
Proj. No.:	**PE310**	Northing (Y):	**61895.2**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
13	#		**AEOLIAN SAND** Dry, orange - brown, loose, silty SAND with roots. 0.4 m **STRONGLY CEMENTED HARDPAN CALCRETE** Dry, white, very dense, strongly cemented gravelly SAND. 1 m Test hole terminated at 1.0 m in very dense strongly cemented hardpan calcrete.	Excavated as sandy gravel.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.4 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP14**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182447.54**
Proj. No.:	**PE310**	Northing (Y):	**61895.15**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, silty SAND with roots. 0.1 m	Excavated as gravel, cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 0.3 m	
			Test hole terminated at 0.3 m. Refusal in very dense strongly cemented hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-03 End: 2024-12-03
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP15**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182700.73**
Proj. No.:	**PE310**	Northing (Y):	**61893.25**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, orange - brown, loose, silty SAND with roots. 0.1 m STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented, gravelly SAND. 0.2 m Test hole terminated at 0.2 m. Refusal in very dense strongly cemented hardpan calcrete.	Excavated as gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP16**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182701.42**
Proj. No.:	**PE310**	Northing (Y):	**62142.69**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, orange - brown, loose, silty SAND with roots. 0.2 m	Excavated as gravel, cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 0.9 m	
			Test hole terminated at 0.9 m in very dense, strongly cemented hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP17**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182449.78**
Proj. No.:	**PE310**	Northing (Y):	**62146.9**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, orange - brown, loose, clayey SAND with roots. 0.4 m STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 0.7 m Test hole terminated at 0.7 m. Refusal in very dense strongly cemented hardpan calcrete.	Excavated as sandy gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP18**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182198.1**
Proj. No.:	**PE310**	Northing (Y):	**62147.6**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, medium dense, clayey SAND with roots. 0.3 m **STRONGLY CEMENTED HARDPAN CALCRETE** Dry, white, very dense, strongly cemented, gravelly SAND. 0.6 m Test hole terminated at 0.6 m. Refusal in very dense hardpan calcrete.	Excavated as sandy gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-02 End: 2024-12-02
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP19**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182200.13**
Proj. No.:	**PE310**	Northing (Y):	**62398.91**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, clayey SAND with roots. 0.9 m	
14	#		**MODERATELY CEMENTED CALCRETE** Dry, white, dense, moderately cemented gravelly SAND. 1.5 m	
			RESIDUAL SHALE Fine to medium, sub-angular, closely packed GRAVEL of weathered shale in a matrix of a dry yellow - brown and white, silty sand. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.9 - 1.5 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP20**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182451.52**
Proj. No.:	**PE310**	Northing (Y):	**62398.07**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, clayey SAND with roots. 0.1 m	Excavated as sandy gravel, cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 1.1 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, white, soft, weakly cemented sandy SILT. 1.3 m	
			WEAKLY CEMENTED CALCRETE Moist, white stained greenish - brown stained, firm, weakly cemented gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale. 2.2 m	
			RESIDUAL SHALE Fine to medium, sub-angular closely packed GRAVEL of weathered shale in a matrix of moist, yellowish - brown clayey silty sand. Overall consistency is medium dense. 3.1 m	
			Test hole terminated at 3.1 m. maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP21**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182701.37**
Proj. No.:	**PE310**	Northing (Y):	**62395.81**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, clayey SAND with roots. 0.4 m	Excavated as sandy gravel, cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white and yellowish - brown, very dense, strongly cemented gravelly SAND. 0.9 m	
			Test hole terminated at 0.9 m. Refusal in very dense hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-03	End:	2024-12-03
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP22**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182197.17**
Proj. No.:	**PE310**	Northing (Y):	**62654.74**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey SAND with roots. 0.3 m	Excavated as sandy gravel, cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white speckled green, very dense, strongly cemented gravelly SAND. 0.4 m	
			Test hole terminated at 0.4 m. Refusal in hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP23**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181944.1**
Proj. No.:	**PE310**	Northing (Y):	**62662.17**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, loose, clayey SAND with roots. 0.3 m	Excavated as gravelly sand with cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white and yellowish - brown, very dense, strongly cemented gravelly SAND. 0.7 m	
			Test hole terminated at 0.7 m. Refusal in very dense hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP24**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181948.04**
Proj. No.:	**PE310**	Northing (Y):	**62409.64**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, medium dense, clayey SAND with roots. 0.5 m	Excavated as sandy gravel.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented, gravelly SAND. 1.5 m	Excavated as coarse sandy gravel.
			SOFT ROCK SHALE Moderately weathered, dark grey stained brown and white, very thinly bedded, very highly fractured, very fine grained. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP25**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181690.8**
Proj. No.:	**PE310**	Northing (Y):	**62662.47**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish brown, loose, clayey SAND. 0.4 m	Excavated as sandy gravel and cobbles.
			SOFT ROCK DOLERITE Highly weathered, yellowish - brown speckled black and orange, very highly fractured, fine to coarse grained. 0.8 m	
			Test hole terminated at 0.8 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP26**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181696.47**
Proj. No.:	**PE310**	Northing (Y):	**62913.38**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey SAND with roots. 0.4 m	Excavated as sandy gravel and cobbles.
			SOFT ROCK DOLERITE Moderately weathered, dark grey speckled and stained white, very highly fractured, fine to coarse grained. 0.9 m	
			Test hole terminated at 0.9 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP27**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181441.67**
Proj. No.:	**PE310**	Northing (Y):	**62912.3**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, medium dese, clayey SAND with roots. 0.4 m	Excavated as gravelly sand with minor cobbles.
			VERY SOFT ROCK DOLERITE Highly weathered, yellowish, brown speckled white and black, very highly fractured, fine to coarse grained. 0.8 m	
			Test hole terminated at 0.8 m. Refusal in very soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

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Contractor: Roadlab (Pty) Ltd. Start: 2024-12-03 End: 2024-12-03
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV2 TP28**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181192.45**
Proj. No.:	**PE310**	Northing (Y):	**62912.52**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey SAND with roots. 0.3 m	Excavated as gravelly sand and cobbles.
			SOFT ROCK DOLERITE Highly weathered, yellowish - brown, speckled white, very highly fractured, fine to coarse grained. 0.7 m	
			Test hole terminated at 0.7 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Rock sample at 0.60 - 0.67 m (PL).

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Contractor: Roadlab (Pty) Ltd. Start: 2024-12-03 End: 2024-12-03
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP1**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183694.24**
Proj. No.:	**PE310**	Northing (Y):	**61625.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
15	#		**TOPSOIL** Slightly moist, dark brown, medium dense, fissured clayey SAND with minor fin gravel. 1.1 m	
			RESIDUAL SHALE Slightly moist, green speckled white and black, stiff, shattered, gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale and calcrete. 1.7 m	Excavated as coarse sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, greenish-grey stained yellow and brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.10 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.5 m - 1.0 m (FI+MOD+CBR).
4. In-situ thermal resistivity test at 0.70 m.

smec an Su company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT 428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP2**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183445.35**
Proj. No.:	**PE310**	Northing (Y):	**61625.77**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with roots. 0.9 m	
16	○		**RESIDUAL SHALE** Slightly moist, olive green stained white and orange, stiff, sandy gravelly CLAY. Gravel consists of fine to coarse sub-angular abundant shale. 2.4 m	
			RESIDUAL SHALE Fine to coarse, sub - angular tightly packed GRAVEL and minor CBBLES of weathered shale in a matrix of slightly moist, olive - green speckled white clayey silty sand. Overall consistency is dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.9 - 2.4 m (FI).

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP3**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183194.51**
Proj. No.:	**PE310**	Northing (Y):	**61629.14**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
17	#		**TOPSOIL** Slightly moist, dark brown, medium dense, fissured, clayey SAND with roots. 0.5 m	
			RESIDUAL SHALE Dry, yellowish - green stained white, stiff, shattered sandy CLAY with minor roots. 1.1 m	
			RESIDUAL SHALE Moist, olive - green stained reddish - orange very stiff, gravelly CLAY. Gravel consists, sub-angular, fine to coarse, abundant shale. 1.7 m	
18	O		**RESIDUAL SHALE** Fine to coarse, sub-angular, closely packed GRAVEL of weathered shale in a matrix of moist, olive green, silty clay. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.5 - 1.1 m (FI+MOD+CBR); and Indicator sample at 2.40 - 3.10 m (FI).

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP4**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182945.8**
Proj. No.:	**PE310**	Northing (Y):	**61630.55**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
19	#		**TOPSOIL** Dry, greyish-brown, loose, silty SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, reddish brown and white, medium dense, clayey gravelly SAND. 0.5 m	
			RESIDUAL SHALE Moist, brown speckled yellow, firm, sandy CLAY. 1.5 m	
			RESIDUAL SHALE Moist, greenish-brown, firm, gravelly CLAY. Gravel consists of fine to coarse, sub-angular, abundant shale. 2.6 m	Excavated as coarse sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, green stained yellow and brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.10 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.50 m - 1.50 m (FI+MOD+CBR).
4. In-situ thermal resistivity test at 0.80 m.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-22	End:	2024-11-22
Plant:	CAT 428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP5**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182943.8**
Proj. No.:	**PE310**	Northing (Y):	**61381.33**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
20	[■]		**TOPSOIL** Slightly moist, dark brown, medium dense, clayey SAND with roots 0.3 m **WEAKLY CEMENTED CALCRETE** Slightly moist, pale reddish - orange stained white, dense, clayey gravelly SAND with minor roots. 0.7 m **RESIDUAL SHALE** Slightly moist, reddish - orange, firm to stiff, sandy CLAY with minor fine shale gravel. 1.7 m **RESIDUAL SHALE** Moist, greenish - brown stained orange, very stiff, sandy gravelly CLAY. Gravel consists of fine sub-angular abundant shale. 2.3 m **VERY SOFT ROCK SHALE** Highly weathered, greenish brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as clayey gravel.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Block sample at 1.3 m - 1.5 m (FI+Free Swell).

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP6**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183192.77**
Proj. No.:	**PE310**	Northing (Y):	**61378.24**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with roots. 0.6 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, reddish - orange stained and white, dense, clayey gravelly SAND. 0.9 m	
			RESIDUAL SHALE Slightly moist, olive green speckled and stained white, firm to stiff, shattered, sandy gravelly CLAY. Gravel consists of fine to medium sub-angular, abundant shale. 2.2 m	Excavated as a clayey gravel.
			VERY SOFT ROCK SHALE Highly weathered, olive - green, very thinly bedded, very highly fractured, very fine grained. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP7**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183444.03**
Proj. No.:	**PE310**	Northing (Y):	**61377.15**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with roots 0.4 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, reddish - orange speckled and stained white, dense, clayey gravelly SAND. Gravel consists fine, sub - angular to angular abundant calcrete. 1.1 m	
			RESIDUAL SHALE Slightly moist, olive - green stained white and orange, very stiff, gravelly CLAY. Gravel consists, fine to medium, sub - angular, abundant shale. 2.5 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed GRAVEL of weathered shale in a matrix of slightly moist, olive - green speckled white clayey silty sand. Overall consistency is dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP8**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183440.3**
Proj. No.:	**PE310**	Northing (Y):	**61126.53**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with roots 0.4 m	
			WEAKLY CEMENTED CALCRETE Dry, pale reddish - brown stained white, medium dense, weakly cemented clayey gravelly SAND. 0.7 m	
			RESIDUAL SHALE Fine to coarse, sub - angular, closely packed GRAVEL and cobbles of weathered shale, in a matric of moist, olive - green stained orange clayey silty sand. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP9**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183191.25**
Proj. No.:	**PE310**	Northing (Y):	**61127.66**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
21	#		**TOPSOIL** Slightly moist, dark brown, dense, clayey SAND with roots. 0.4 m **WEAKLY CEMENTED CALCRETE** Slightly moist, reddish - orange and olive green, dense, clayey gravelly SAND. 1.4 m **RESIDUAL SHALE** Slightly moist to moist, olive - green stained red and orange, very stiff, shattered and relic bedded gravelly CLAY. Gravel consists of fine to coarse, sub - angular abundant shale. 2.3 m **VERY SOFT ROCK SHALE** Highly weathered, yellowish brown, very thin to thinly bedded, very highly fractured, very fine grained. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as sandy gravel and cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 2.3 m - 3.1 m (FI+MOD+CBR).

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP10**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182942.43**
Proj. No.:	**PE310**	Northing (Y):	**61129.87**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, dense, clayey SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, reddish orange speckled white, dense, weakly cemented clayey gravelly SAND. 1.2 m	
			RESIDUAL SHALE Slightly moist, olive-green stained orange and white, firm gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale and calcrete. 2.3 m	
			RESIDUAL SHALE Fine to medium, sub-angular, closely packed GRAVEL of weathered shale in a matrix of moist, olive-green, sandy clay. Overall consistency is dense. 3.1 m	
			Test hole terminated at 3.1m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

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Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:		Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP11**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182946.47**
Proj. No.:	**PE310**	Northing (Y):	**60880.69**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, orange - dark brown, medium dense, clayey SAND with minor fine gravel. 0.7 m	
			MODERATELY CEMENTED CALCRETE Slightly moist, white and reddish - orange, very dense, moderately cemented clayey gravelly SAND. 1.3 m	Excavated as coarse sandy gravel and cobbles.
			SOFT ROCK SHALE Slightly to moderately weathered, dark grey stained white, very thinly to thinly bedded, very highly fractured, very fine grained. 2.5 m	
			Test hole terminated at 2.5 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP12**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183189.31**
Proj. No.:	**PE310**	Northing (Y):	**60876.82**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.2 m	J1: 010°/064° (Dip/dip direction) clean to stained, 0 - 1 mm wide, clay infill of 1 mm, slightly moist to slightly rough, joint spacing: 50 - 70 mm. J2: >90°/170° (Dip/dip direction) stained (stepped) joint spacing: 30 mm - 180 mm. J3: 085°/068° (Dip/dip direction) stained, slightly moist to slightly rough joint spacing: 60 mm - 300 mm.
			RESIDUAL SHALE Fine to coarse, angular, tightly packed GAVEL of weathered shale in a matrix of slightly moist, reddish brown, clayey sand. Overall consistency is medium dense. 0.3 m	
			SOFT ROCK SHALE Highly weathered, light grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 0.6 m	
			MEDIUM HARD ROCK SHALE Slightly to moderately weathered, greenish - grey stained orange and white, medium bedded, highly fractured, very fine grained. 1 m	
			Test hole terminated at 1.0 m. Refusal in soft to medium hard rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No sample obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP13**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183189.75**
Proj. No.:	**PE310**	Northing (Y):	**60626.2**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
22	#		**TOPSOIL** Slightly moist, dark brown, medium dense, fissured clayey SAND with roots. 0.3 m	
23	#		**WEAKLY CEMENTED CALCRETE** Slightly moist, white and yellowish brown, dense gravelly SAND. 1.2 m **VERY SOFT ROCK DOLERITE** Highly weathered, yellowish brown, very highly fractured, fine to coarse grained. 2.3 m	Excavated as sandy gravel with cobbles.
			Test hole terminated at 2.3 m. Refusal in very soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.3 m - 1.2 m (FI+MOD+CBR); and bulk sample at 1.2 m - 2.3 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP14**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182942.61**
Proj. No.:	**PE310**	Northing (Y):	**60630.8**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark red brown, dense, fissured, clayey SAND. 0.4 m **SOFT ROCK DOLERITE** Highly weathered, dark brown speckled red and yellow stained white, very highly fractured fine grained. 1.7 m	Excavated as sandy gravel, cobbles and small boulders.
			Test hole terminated at 1.7 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP15**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182692.81**
Proj. No.:	**PE310**	Northing (Y):	**60636.55**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
24	#		TOPSOIL Slightly moist, dark brown, loose, clayey SAND with roots. 0.3 m SOFT ROCK DOLERITE Highly weathered, rusty brown and dark grey stained white, very highly fractured, fine to medium grained. 0.8 m Test hole terminated at 0.8 m. Refusal in soft rock dolerite.	Excavated as sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.3 m - 0.8 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP16**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182443.15**
Proj. No.:	**PE310**	Northing (Y):	**60641.07**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, medium dense, clayey SAND with roots. 0.3 m	
			WEAKLY CEMENTED CALCRETE Dry, white stained reddish-orange, dense, weakly cemented gravelly SAND. Gravel consists of fine, angular, abundant shale and calcrete. 0.7 m	
			RESIDUAL SHALE Slightly moist, greenish-brown stained orange, stiff, shattered gravelly CLAY. Gravel consists of fine, sub-angular abundant shale and minor cobbles. 2.3 m	Excavated as coarse sandy clayey gravel Also contains minor rounded soft rock dolerite cobbles at the base.
			VERY SOFT ROCK SHALE Highly weathered, olive - green stained orange, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP17**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182188.69**
Proj. No.:	**PE310**	Northing (Y):	**60389.43**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
25	#		**TOPSOIL** Dry, dark brown, loose, clayey SAND with roots. 0.3 m **RESIDUAL SHALE** Fine to medium, sub-angular tightly packed GRAVEL of shale and calcrete in a matrix of dry, white silty sand. 1.4 m **SOFT ROCK SHALE** Moderately weathered, dak grey stained orange and white, very thinly bedded, very highly fractured very fine grained. 2.7 m Test hole terminated at 2.70 m. Refusal in soft rock shale.	Excavated as coarse sandy gravel and cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.3 - 1.4 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP18**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182438.7**
Proj. No.:	**PE310**	Northing (Y):	**60388.22**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
26	#		**TOPSOIL** Slightly moist dark brown, medium dense, clayey SAND with minor gravel and roots. 0.3 m **WEAKLY CEMENTED CALCRETE** Dry, white and reddish orange, dense, clayey gravelly SAND. Gravel consists sub-angular, fine, abundant calcrete and dolerite. 0.7 m **STRONGLY CEMENTED HARDPAN CALCRETE** Dry, white, very dense, strongly cemented gravelly SAND 1.5 m **VERY SOFT ROCK DOLERITE** Highly weathered, yellowish brown, very highly fractured, fine to coarse grained. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as gravelly sand.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 1.5 - 3.1 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP19**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182690.03**
Proj. No.:	**PE310**	Northing (Y):	**60387.9**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, loose, clayey SAND with roots. 0.2 m	
			WEAKLY CEMENTED CALCRETE Slightly moist to moist, white and olive - green, firm, gravelly CLAY. Gravel consists of fine to medium sub-angular, abundant shale. 1.2 m	
			RESIDUAL SHALE Fine to medium, sub-angular tightly packed GRAVEL of weathered shale in a matrix of moist greenish - brown sandy clay. Overall consistency is medium dense. 2.5 m	Excavated as clayey gravel and cobbles.
			VERY SOFT ROCK SHALE Highly weathered, olive - green stained orange, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP20**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182940.71**
Proj. No.:	**PE310**	Northing (Y):	**60381.16**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
27	#		**TOPSOIL** Slightly moist, dark brown, medium dense, fissured, clayey SAND with roots. 0.2 m	
			WEAKLY CEMENTED CALCRETE Slightly moist, white, medium dense, weakly cemented clayey gravelly SAND. 0.8 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed GRAVEL of weathered shale in a matrix of slightly moist, silty sand. Overall consistency is dense. 1.7 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater seepage.
2. No sidewall collapse.
3. Bulk sample at 0.2 m - 0.8 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-29	End:	2024-11-29
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP21**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182685.47**
Proj. No.:	**PE310**	Northing (Y):	**60136.33**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, loose, clayey SAND with roots. 0.4 m	
			MODERATELY CEMENTED CALCRETE Dry, white and reddish brown, dense, clayey gravelly SAND. Gravel consists of fine to medium angular abundant calcrete. 1.4 m	
28	#		**RESIDUAL SHALE** Fine to medium, sub - angular, tightly packed GRAVEL of weathered shale in a matrix of dry, yellowish brown and white clayey silty sand. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 1.4 m - 3.1 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP22**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182435.12**
Proj. No.:	**PE310**	Northing (Y):	**60137.7**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel. 0.7 m	Excavated as coarse gravel cobbles and small boulders.
			RESIDUAL SHALE Fine to medium, sub - angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist reddish brown silty clay. Overall consistency is dense. 0.8 m	
			SOFT ROCK SHALE Moderately weathered, dark grey stained orange and white, very thin to thinly bedded, very highly fractured, very fine grained. 1.5 m	
			Test hole terminated at 1.5 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP23**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182184.62**
Proj. No.:	**PE310**	Northing (Y):	**60139.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
29	O		**TOPSOIL** Dry, dark brown, medium dense, clayey SAND with roots. 0.4 m	
			MODERATELY CEMENTED CALCRETE Dry, white and reddish - orange, very dense, clayey gravelly SAND. Gravel consists, sub - angular abundant shale and calcrete. 0.7 m	
30	#		**RESIDUAL SHALE** Slightly moist, yellowish - green, stained orange, very stiff, shattered, gravelly CLAY. Gravel consists, sub-angular abundant fine to medium shale. 1.5 m	
			RESIDUAL SHALE Fine to medium, subangular, closely packed GRAVEL of weathered shale in a matrix of slightly moist olive-green sandy clay. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 m - 0.4 m (FI); and bulk sample at 1.5 m - 3.1 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP24**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181933.99**
Proj. No.:	**PE310**	Northing (Y):	**60140.05**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
31	#		**AEOLIAN SAND** Dry, reddish orange, dense, clayey SAND with roots. 0.7 m	
			MODERATELY CEMENTED CALCRETE Dry to slightly moist, white and olive - green, dense, clayey gravelly SAND. Gravel consists fine to medium sub-angular abundant shale and calcrete. 2 m	
			RESIDUAL SHALE Fine to medium, sub - angular closely packed GRAVEL and COBBLES of weathered shale in a matrix of slightly moist, greenish - brown sandy clay. Overall consistency is dense. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 m - 0.7 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP25**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181429.97**
Proj. No.:	**PE310**	Northing (Y):	**59897.15**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish brown, dense, clayey SAND with roots. 0.3 m	Excavated as gravelly sand with cobbles and small boulders.
			SOFT ROCK DOLERITE Highly weathered, yellowish brown and white, very highly fractured, fine to coarse grained. 0.7 m	
			Test hole terminated at 0.7 m. Refusal in very dense hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP26**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181932.42**
Proj. No.:	**PE310**	Northing (Y):	**59890.06**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, medium dense, clayey SAND minor fine gravel and roots. 0.3 m	Excavated as coarse clayey sandy gravel with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white and reddish - orange, very dense, strongly cemented gravelly SAND. 0.5 m	
			RESIDUAL SHALE Fine to medium, sub-angular, closely packed GRAVEL of weathered shale in a matrix of dry, white, clayey silty sand. Overall consistency is very dense. 1.3 m	
			VERY SOFT ROCK SHALE Highly weathered, greenish - grey/olive green, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP27**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182184.92**
Proj. No.:	**PE310**	Northing (Y):	**59887.65**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, medium dense, clayey SAND with roots. 0.2 m	Excavated as gravelly sand with cobbles and small boulders.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND with minor rounded, hard dolerite cobbles and small boulders. 0.9 m	
			Test hole terminated at 0.9 m. Refusal in very dense strongly cemented hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP28**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182437.23**
Proj. No.:	**PE310**	Northing (Y):	**59887.56**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, medium dense, clayey SAND. 0.1 m	
			WEAKLY CEMENTED CALCRETE Dry, white and reddish-orange, dense, weakly cemented, clayey gravelly SAND. 1.1 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed GRAVEL of weathered shale in a matrix of slightly moist, greenish brown and white clayey silty sand. Overall consistency is very dense. 2.1 m	Excavated as coarse clayey gravel with cobbles.
			VERY SOFT ROCK SHALE Highly weathered, olive-green stained orange, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of the TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT 428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP29**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182182.54**
Proj. No.:	**PE310**	Northing (Y):	**59637.38**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
32			**TOPSOIL** Slightly moist, dark brown, loose, clayey SAND with roots. 0.2 m **WEAKLY CEMENTED CALCRETE** Slightly moist to moist, white stained reddish, stiff, gravelly CLAY. Gravel consists of fine sub-angular abundant shale and calcrete. 0.7 m **RESIDUAL SHALE** Moist, green and yellow, stained white, stiff, gravelly CLAY. Gravel consists of fine to medium sub-angular shale. 3 m Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.7 m - 3.0 m (FI).

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP30**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181930.12**
Proj. No.:	**PE310**	Northing (Y):	**59639.92**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
33	#		**TOPSOIL** Dry, dark brown, loose, clayey SAND with roots. 0.3 m **WEAKLY CEMENTED CALCRETE** Dry, white, very dense, strongly cemented gravelly SAND. 1.5 m **SOFT ROCK SHALE** moderately weathered, dark grey stained white, very thinly bedded, very highly fractured, very fine grained. 2.7 m Test hole terminated at 2.7 m. Refusal in soft rock shale.	Excavated as sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.3 m - 1.5 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP31**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181681.98**
Proj. No.:	**PE310**	Northing (Y):	**59641.63**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, loose, clayey SAND with roots. 0.15 m	Excavated as sandy gravel with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented, gravelly SAND. 0.7 m	
			Test hole terminated at 0.70 m. Refusal in very dense hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP32**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181429.1**
Proj. No.:	**PE310**	Northing (Y):	**59647.01**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish brown, medium dense, clayey SAND with roots. 0.3 m	Excavated as sandy gravel with cobbles.
			STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented gravelly SAND. 0.5 m	
			Test hole terminated at 0.5 m. Refusal in very dense hardpan calcrete.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP33**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181177.59**
Proj. No.:	**PE310**	Northing (Y):	**59647.22**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish brown, medium dense, clayey SAND with roots. 0.5 m	
			RESIDUAL SHALE Fine, sub-angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, dark grey sandy clay. Overall consistency is dense. 0.8 m	Excavated as sandy gravel with cobbles.
			SOFT ROCK SHALE Moderately weathered, dark grey stained reddish brown, very thin to thinly bedded, very highly fractured, very fine grained. 1.8 m	
			Test hole terminated at 1.8 m. Refusal in very soft to soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP34**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181429.78**
Proj. No.:	**PE310**	Northing (Y):	**59396.33**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish brown, medium dense, clayey SAND with roots. 0.15 m STRONGLY CEMENTED HARDPAN CALCRETE Dry, white, very dense, strongly cemented, gravelly SAND. 0.3 m Test hole terminated at 0.3 m. Refusal in very dense hardpan calcrete.	Excavated as sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-12-02 End: 2024-12-02
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP35**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181681.25**
Proj. No.:	**PE310**	Northing (Y):	**59391.96**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Dry, dark brown, medium dense, clayey SAND with roots. 0.3 m	
			AEOLIAN SAND Slightly moist, reddish orange, medium dense, clayey SAND. 0.9 m	
			RESIDUAL SHALE Slightly moist to moist, white and greenish brown, very stiff and relic jointed gravelly CLAY. Gravel consists fine to medium, subangular, abundant shale. 1.9 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed gravel of weathered shale in a matrix of moist, greenish - brown sandy clay. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.10 m. Maximum reach of TLB.	

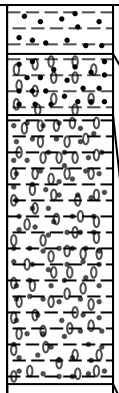
Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP36**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181930.39**
Proj. No.:	**PE310**	Northing (Y):	**59391.07**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			**TOPSOIL** Slightly moist, dark brown, medium dense, clayey SAND with roots 0.4 m **WEAKLY CEMENTED CALCRETE** Moist, white and reddish - orange, dense, weakly cemented clayey gravelly SAND. Gravel consists of sub-angular, fine, abundant shale and calcrete. 0.9 m **RESIDUAL SHALE** Moist, yellowish - green stained white, stiff, sandy gravelly CLAY. Gravel consists of fine to coarse angular to sub - angular abundant calcrete and shale. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-30	End:	2024-11-30
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV3 TP37**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3181680.12**
Proj. No.:	**PE310**	Northing (Y):	**59142.7**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
34	#		**TOPSOIL** Dry, brown, loose, clayey SAND with roots. 0.3 m **WEAKLY CEMENTED CALCRETE** Dry, white, medium dense, weakly cemented gravelly SAND. 0.5 m **MODERATELY CEMENTED CALCRETE** Slightly moist, white and orange-brown, dense, moderately cemented gravelly SAND. 1.1 m **RESIDUAL SHALE** Moist, greenish-brown speckled yellow and black, firm, gravelly CLAY. Gravel consists of fine to coarse, sub-angular, abundant shale. 3 m Test hole terminated at 3.00 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.5 m - 1.1 m (FI+MOD+CBR).
4. In-situ thermal resistivity test at 0.90 m.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-22	End:	2024-11-22
Plant:	CAT 428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP1**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182956.92**
Proj. No.:	**PE310**	Northing (Y):	**63644.31**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.4 m	
			AEOLIAN SAND Slightly moist, reddish brown speckled, medium dense, clayey SAND with minor fine gravel. 1.2 m	Contains relic bedding and jointing stained brown and black.
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, yellowish brown and white clayey silty sand. Overall consistency is very dense. 2.4 m	Excavated as sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, olive-green stained brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP2**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182705.1**
Proj. No.:	**PE310**	Northing (Y):	**63396.32**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with roots 0.5 m	
			AEOLIAN SAND Slightly moist, reddish orange speckled white, medium dense, clayey SAND with minor fine gravel. 1 m	
			RESIDUAL SHALE Slightly moist, olive-green, very stiff, relic bedded gravelly CLAY. 2.4 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed gravel of weathered shale in a matrix of slightly moist, yellowish-brown clayey silty sand. Overall consistency is very dense. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP3**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182956.55**
Proj. No.:	**PE310**	Northing (Y):	**63389.61**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
35	[■]		**TOPSOIL** Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.4 m	
36	[■]		**AEOLIAN SAND** Slightly moist, reddish brown, medium dense, fissured, clayey SAND with minor fine gravel and roots. 0.9 m	
			RESIDUAL SHALE Moist, orange - brown speckled white, stiff, sandy CLAY with minor fine shale gravel. 1.7 m	
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed gravel of weathered shale in a matrix of moist, yellowish brown, clayey silty sand. Overall consistency is dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater seepage.
2. No sidewall collapse.
3. Block sample at 0.4 - 0.6 m (FI+CP); and block sample at 1.2 -1.4 m (FI+Free swell).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP4**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183206.59**
Proj. No.:	**PE310**	Northing (Y):	**63385.99**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.3 m	Excavated as coarse sandy gravel with cobbles.
			RESIDUAL SHALE Slightly moist, greyish - brown, very stiff, relic bedded, gravelly CLAY. Gravel consists of sub-angular, fine to medium, abundant shale. 0.7 m	
			SOFT ROCK SHALE Moderately weathered, greenish - grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 2 m	
			Test hole terminated at 2.0 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP5**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.3**
Proj. No.:	**PE310**	Northing (Y):	**63382.77**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown speckled white, medium dense, clayey SAND with roots. 0.7 m	
			RESIDUAL SHALE Fine to medium sub-angular, tightly packed GRAVEL of weathered shale and calcrete in a matrix of slightly moist, grey and white, clayey silty sand. 1.3 m	Excavated as sandy gravel and cobbles.
			VERY SOFT ROCK SHALE Highly to moderately weathered, greenish - grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP6**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183708.44**
Proj. No.:	**PE310**	Northing (Y):	**63121.86**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots 0.7 m	
			RESIDUAL SHALE Slightly moist, reddish brown speckled yellow, stiff, shattered, sand CLAY with minor fine shale gravel. 1.3 m	Excavated as cobbles and small boulders.
			SOFT ROCK SHALE Slightly weathered, olive - green, very thin to thinly bedded, very highly fractured, very fine grained. 1.7 m	
			Test hole terminated at 1.7 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP7**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.9**
Proj. No.:	**PE310**	Northing (Y):	**63131.24**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
37	#		**TOPSOIL** Slightly moist, brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m **AEOLIAN SAND** Slightly moist, reddish - orange speckled yellow, medium dense, clayey SAND with minor fine gravel. 1.4 m **VERY SOFT ROCK SHALE** Moderately weathered, greenish - grey stained yellow, very thinly bedded, very highly fractured, very fine grained. 2.3 m Test hole terminated at 2.3 m. Refusal in very soft rock shale.	Excavated as sandy gravel with cobbles and minor small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.5 m - 1.4 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP8**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183205.93**
Proj. No.:	**PE310**	Northing (Y):	**63135.59**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.7 m	
			AEOLIAN SAND Slightly moist, reddish brown speckled yellow and white, medium dense to dense clayey SAND with minor fine gravel. 1.5 m	
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, yellowish brown, clayey silty sand. Overall consistency is dense. 1.8 m	Excavated as coarse sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Moderately to highly weathered, greenish - grey stained brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S.Gina	Reviewer:	A. Nxumalo

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP9**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182955.5**
Proj. No.:	**PE310**	Northing (Y):	**63135.77**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel. 0.2 m	
			AEOLIAN SAND Slightly moist, reddish - orange speckled yellow and white, medium dense to dense, clayey SAND with minor fine gravel. 1.2 m	
			RESIDUAL SHALE Slightly moist, yellowish - green thinly banded orange, very stiff, relic bedded, sandy CLAY with minor fine to coarse calcrete and shale gravel. 2.4 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed. Gravel of weathered shale in a matrix of moist, yellowish brown clayey silty sand. Overall consistency is very dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP10**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182954.18**
Proj. No.:	**PE310**	Northing (Y):	**62883.5**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - orange speckled yellow and white, medium dense, clayey SAND with minor fine gravel. 1.3 m	
			RESIDUAL SHALE Slightly moist, greenish - olive, speckled white, very stiff, gravelly CLAY. Gravel consists of fine to medium, sub-angular, abundant shale and calcrete. 2.2 m	Excavated as coarse sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Highly weathered, olive - green stained orange, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP11**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183204.26**
Proj. No.:	**PE310**	Northing (Y):	**62884.25**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - brown speckled yellow, medium dense, clayey SAND with minor fine gravel. 0.6 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, dark grey stained orange and brown, very thinly bedded, very highly fractured, very fine grained. 2.2 m	
			Test hole terminated at 2.2 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP12**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183458.33**
Proj. No.:	**PE310**	Northing (Y):	**62881.84**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - orange speckled yellow and white medium dense, clayey SAND. 1.8 m	
38			**RESIDUAL SHALE** Slightly moist, olive-green stained orange, very stiff, gravelly CLAY. Gravel consists of fine to medium sub-angular abundant shale. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 1.8 m - 3.0 m (FI).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP13**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183704.8**
Proj. No.:	**PE310**	Northing (Y):	**62871.37**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.2 m	
			AEOLIAN SAND Slightly moist to moist, reddish - brown speckled yellow and white, dense, fissured, clayey SAND. 1.4 m	
			RESIDUAL SHALE Fine to medium, sub-angular, closely packed GRAVEL of weathered shale in a matrix of moist, slightly moist, greenish - grey stained white clayey silty sand. Overall consistency is dense. 1.7 m	Excavated as coarse sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, greenish - grey stained brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater seepage.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP14**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183957**
Proj. No.:	**PE310**	Northing (Y):	**62879.79**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	
			AEOLIAN SAND Slightly moist, reddish - orange speckled yellow, dense, clayey SAND. 1.1 m	
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, greenish - grey and white clayey silty sand. Overall consistency is dense. 2.3 m	Excavated as coarse sandy gravel with minor cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, yellowish - green, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP15**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183954.65**
Proj. No.:	**PE310**	Northing (Y):	**62631.19**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown speckled yellow, medium dense, clayey SAND with minor fine gravel and roots. 0.8 m	
			AEOLIAN SAND Slightly moist, reddish - orange speckled yellow, loose, clayey SAND with minor fine gravel. 1.6 m	
			RESIDUAL SHALE Moist, greenish - grey, firm, gravelly CLAY. Gravel consists, fine to medium, sub-angular, abundant shale. 2.7 m	
			VERY SOFT ROCK SHALE Highly to moderately weathered, yellowish - green, very thinly bedded, very highly fractured, very fine grained. 3.1 m	Excavated as sandy gravel.
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP16**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183706.3**
Proj. No.:	**PE310**	Northing (Y):	**62621.03**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with roots 0.4 m	
			AEOLIAN SAND Slightly moist, reddish - orange speckled yellow and white, medium dense, clayey SAND with minor fine gravel. 1.6 m	
			RESIDUAL SHALE Moist, greenish - brown blotched white, stiff, shattered, gravelly CLAY. Gravel consists of fine and medium sub - angular, abundant shale. 3 m	
			Test hole terminated at 3.0 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP17**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.54**
Proj. No.:	**PE310**	Northing (Y):	**62631.41**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, loose, clayey SAND with roots and minor fine gravel. 0.2 m	
			AEOLIAN SAND Slightly moist, reddish - orange speckled white, medium dense, clayey SAND with minor fine gravel. 1.5 m	
			RESIDUAL SHALE Moist, yellowish - green, firm, gravelly CLAY. Gravel consists of fine to medium, sub - angular abundant shale. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP18**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183205.29**
Proj. No.:	**PE310**	Northing (Y):	**62635.17**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.2 m	
			AEOLIAN SAND Slightly moist, orange brown speckled white, loose to medium dense, clayey SAND with minor fine gravel. 1.5 m	
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed. Gravel of weathered shale in a matrix of slightly moist, yellowish brown stained white clayey silty sand. Overall consistency is dense. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP19**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182953.35**
Proj. No.:	**PE310**	Northing (Y):	**62635.85**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.4 m	
			RESIDUAL SHALE Slightly moist, reddish - green stained white, stiff, shattered, sandy gravelly CLAY. Gravel consists fine to medium sub-angular abundant shale. 3.1 m	
			Test hole terminated at 3.1 in calcareous residual shale. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP20**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183704.09**
Proj. No.:	**PE310**	Northing (Y):	**62377.89**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
39	#		**TOPSOIL** Slightly moist, dark brown, loose, clayey SAND with minor fine gravel and roots. 0.4 m **AEOLIAN SAND** Moist, reddish - orange speckled yellow, loose to medium dense, clayey SAND with minor fine gravel. (1.2 m **RESIDUAL SHALE** Fine to medium, sub-angular, tightly packed GRAVEL of highly weathered shale and calcrete in a matrix of slightly moist, greenish brown sandy clay. Overall consistency is dense. 2.5 m **VERY SOFT ROCK SHALE** Highly to moderately weathered, olive green stained yellow, very thinly bedded, very highly fractured, very fine grained. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as coarse sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.4 m - 1.2 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV4 TP21**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183955.05**
Proj. No.:	**PE310**	Northing (Y):	**62380.44**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
40	#		AEOLIAN SAND Slightly moist, dark reddish brown, dense, clayey SAND with roots. 0.4 m SOFT ROCK SHALE Slightly tomoderately weathered, greenish - grey stained orange and white, very thinly to thinly bedded, very highly fractured, very fine grained. 2.4 m Test hole terminated at 2.4 m. Refusal in soft rock shale.	Excavated as coarse sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.4 m - 2.4 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP1**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182956.78**
Proj. No.:	**PE310**	Northing (Y):	**64888.37**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - brown, medium dense, clayey SAND with roots. 0.2 m	Excavated as gravelly sand with cobbles.
			VERY SOFT ROCK DOLERITE Highly weathered, yellowish brown speckled black and orange, very highly fractured, fine to coarse grained. 0.6 m	
			Test hole terminated at 0.6 m. Refusal in very soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP2**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183209.82**
Proj. No.:	**PE310**	Northing (Y):	**64886.52**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
41	#		AEOLIAN SAND Slightly moist, reddish brown, medium dense, clayey SAND with roots. 0.4 m SOFT ROCK DOLERITE Highly weathered, yellowish - brown speckled black and orange, very highly fractured, fine to coarse grained. 1.2 m Test hole terminated at 1.2 m. Refusal in soft rock dolerite.	Excavated as gravelly sand with cobbles and boulders up to 0.4m diameter.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Sample #70 at 0.4 - 1.2 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP3**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183462.58**
Proj. No.:	**PE310**	Northing (Y):	**64884.54**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
42	#		**TOPSOIL** Slightly moist, red brown, loose, clayey SAND with minor fine gravel with roots. 0.4 m	Excavated as sandy gravel. Excavated as sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, reddish orange stained white, very thinly bedded, very highly fractured, very fine grained. 0.6 m	
			SOFT ROCK SHALE Highly to moderately weathered, greenish - grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse
3. Bulk sample at 0.6 - 3.1 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP4**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183710.55**
Proj. No.:	**PE310**	Northing (Y):	**64883.62**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
43	#		**AEOLIAN SAND** Dry, red brown, medium dense, clayey SAND with roots and minor fine gravel. 0.6 m	Excavated as gravelly sand with cobbles.
			VERY SOFT ROCK DOLERITE Highly weathered, yellowish brown, very highly fractured, fine to coarse grained. 1.6 m	
			Test hole terminated at 1.6 m. Refusal in very soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.6 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP5**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.3**
Proj. No.:	**PE310**	Northing (Y):	**63382.77**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - orange, very loose, clayey SANW with minor fine gravel and roots. 0.25 m	Excavated as sandy gravel. Excavated as sandy gravel.
			VERY SOFT ROCK SHALE Highly to completely weathered, light grey stained white and orange, very thinly bedded, very highly fractured, very fine grained. 0.4 m	
			SOFT ROCK SHALE Moderately weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 1 m	
			Test hole terminated at 1.0 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.
4. In-situ thermal resistivity test @ 0.5 m.

smec an Su company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-23	End:	2024-11-23
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP6**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183714.83**
Proj. No.:	**PE310**	Northing (Y):	**64632.48**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, very medium dense, clayey SAND with minor fine gravel and roots. 0.4 m	Excavated as sandy gravel.
			AEOLIAN SAND Slightly moist, reddish brown, medium dense, clayey SAND with minor roots. 0.9 m	
			SOFT ROCK SHALE Slightly weathered, greenish - grey stained white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP7**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.67**
Proj. No.:	**PE310**	Northing (Y):	**64634.18**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, red brown, loose, clayey SAND with minor fine gravel and roots. 0.3 m	Excavated as sandy gravel. Excavated as sandy gravel.
			VERY SOFT ROCK SHALE Highly weathered, reddish - orange, very thinly bedded, very highly fractured, very fine grained. 0.5 m	
			SOFT ROCK SHALE Slightly weathered, greenish - grey stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 1.2 m	
			Test hole terminated at 1.2 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No sample obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-06	End:	2024-12-06
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP8**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183208.89**
Proj. No.:	**PE310**	Northing (Y):	**64635.7**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
45	#		**AEOLIAN SAND** Slightly moist, red brown, loose, clayey SAND with roots. 0.5 m	Excavated as sandy gravel with cobbles.
46	#		**STRONGLY CEMENTED HARDPAN CALCRETE** Dry, white very dense, strongly cemented gravelly SAND. 0.8 m	Excavated as sandy gravel with cobbles and small boulders.
			SOFT ROCK DOLERITE Highly to moderately weathered, dark grey stained orange, very highly fractured, coarse grained. 1.8 m	
			Test hole terminated at 1.8 m. Refusal on soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.5 m (MOD+CBR+FI) and at 0.8 - 1.8 m (MOD+CBR+FI).
4. In-situ thermal resistivity @ 0.9 m.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-23	End:	2024-11-23
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP9**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182955.43**
Proj. No.:	**PE310**	Northing (Y):	**64636.49**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
47	#		**AEOLIAN SAND** Dry, reddish - orangish, medium dense, clayey SAND with roots. 0.4 m **Very Soft Rock Dolerite** Highly weathered, rusty brown speckled orange and black, very highly fractured, coarse grained. 1 m Test hole terminated at 1.0 m. Refusal in soft rock dolerite.	Excavated as sandy gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.4 m (MOD+CBR+FI).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-12-02	End:	2024-12-02
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP10**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182694.26**
Proj. No.:	**PE310**	Northing (Y):	**64388.53**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
48	○		**AEOLIAN SAND** Slightly moist, dark red, loose, clayey SAND with roots. 0.3 m	Excavated as gravelly sand with cobbles.
49	#		**SOFT ROCK DOLERITE** Highly weathered, yellowish brown, very highly fractured. medium to coarse grained. 0.7 m Test hole terminated at 0.7 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.0 - 0.3 m (FI) and bulk sample at 0.3 - 0.7 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP11**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182954.01**
Proj. No.:	**PE310**	Northing (Y):	**64388.16**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
50	#		**AEOLIAN SAND** Slightly moist, red brown, very loose, clayey SAND with minor fine gravel and roots. 0.4 m	Excavated as gravelly sand with cobbles.
51	#		**VERY SOFT ROCK DOLERITE** Highly weathered, yellowish brown, very highly fractured, medium to coarse grained. 1.4 m	
			Test hole terminated at 1.4 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.4 m (FI+MOD+CBR) and bulk sample at 0.4 - 1.4 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP12**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183208.25**
Proj. No.:	**PE310**	Northing (Y):	**64387.43**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish brown, medium dense, clayey SAND with minor fine gravel and roots. 0.6 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, tightly packed GRAVEL of weathered shale and calcrete in a matrix of slightly moist, greenish - grey stained white, sandy clay. Overall consistency is medium dense. 2.1 m	
			VERY SOFT ROCK SHALE Slightly weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 3.1 m	Excavated as sandy gravel.
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP13**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.73**
Proj. No.:	**PE310**	Northing (Y):	**64386.34**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.6 m	
			AEOLIAN SAND Slightly moist, reddish brown speckled yellow, medium dense clayey SAND. 0.9 m	Excavated as sandy gravel with cobbles.
			RESIDUAL SHALE Fine to coarse sub-angular to sub-rounded, tightly packed GRAVEL of slightly weathered shale in a matrix of slightly moist, greenish - grey stained yellow, sandy clay. Overall consistency is medium dense. 1.2 m	
			VERY SOFT ROCK SHALE Highly to moderately weathered, greenish - grey stained yellow on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP14**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183720.77**
Proj. No.:	**PE310**	Northing (Y):	**64385.43**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor gravel and roots. 0.5 m	Excavated as sandy gravel.
			VERY SOFT ROCK SHALE Moderately weathered, greenish - grey stained yellow and white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP15**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183957.65**
Proj. No.:	**PE310**	Northing (Y):	**64385.67**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, loose, clayey SAND with minor gravel and roots. 0.4 m	
			RESIDUAL SHALE Fine to coarse, sub-angular to sub-rounded, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, greenish - grey stained white sandy clay. Overall consistency is medium dense. 1.9 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Slightly to moderately weathered, greenish - grey stained white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP16**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184206.87**
Proj. No.:	**PE310**	Northing (Y):	**64384.69**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.4 m	Excavated as sandy gravel with cobbles.
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed GRAVEL of weathered shale in a matrix of slightly moist, dark red brown, sandy clay. Overall consistency is medium dense. 0.55 m	Excavated as sandy gravel, cobbles and small boulders.
			VERY SOFT ROCK SHALE Highly to moderately weathered, dark grey, stained orange and white on joints, very thinly bedded, very highly fractured, very fine grained. 1.7 m	
			SOFT ROCK SHALE Slightly weathered, greenish - grey stained orange on joints, thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP17**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184450.01**
Proj. No.:	**PE310**	Northing (Y):	**64125.55**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
52	○		**AEOLIAN SAND** Slightly moist, reddish - orange, loose, clayey SAND with roots. 0.4 m	Excavated as sandy gravel, cobbles and small boulders up to 0.4m diameter.
53	#		**SOFT ROCK DOLERITE** Moderately weathered, dark grey stained orange, very highly fractured. medium to coarse grained. 0.6 m	
			Test hole terminated at 0.6 m. Refusal in soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.0 - 0.4 m (FI) and bulk sample at 0.4 - 0.6 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP18**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184205.14**
Proj. No.:	**PE310**	Northing (Y):	**64130.75**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish - orange, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	
			RESIDUAL SHALE Fine to medium, sub-angular to sub-rounded, tightly packed GRAVEL of moderately weathered shale in a matrix of dry white and orange sand. Overall consistency is medium dense. 1.8 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.10 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No sample obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP19**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183953.21**
Proj. No.:	**PE310**	Northing (Y):	**64134.1**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
54			**TOPSOIL** Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	
			RESIDUAL SHALE Slightly moist, orange - brown speckled and stained white, medium dense, gravelly SAND, 0.9 m	
			RESIDUAL SHALE Fine to medium, sub-angular to sub-rounded, tightly packed GRAVEL of highly to moderately weathered shale in a matrix of dry, white, clayey sand. Overall consistency is dense. 2.2 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Highly to moderately weathered, greenish - grey stained brown on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.5 - 0.9 m (FI).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-24	End:	2024-11-24
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP20**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183718.79**
Proj. No.:	**PE310**	Northing (Y):	**64136.65**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Moist, dark brown, loose, clayey SAND cont. roots. 0.4 m	
			RESIDUAL SHALE Slightly moist, greenish - grey speckled white, stiff, shattered, gravelly CLAY. Gravel consists of fine to coarse sub-angular, abundant shale and calcrete. 1.9 m	
			VERY SOFT ROCK SHALE Highly to moderately weathered, greenish - grey stained orange and black on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	Excavated as sandy gravel with cobbles.
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP21**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183459.75**
Proj. No.:	**PE310**	Northing (Y):	**64131.23**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
55	#		**TOPSOIL** Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m **AEOLIAN SAND** Slightly moist, reddish - orange speckled yellow, medium dense, clayey SAND with minor fine gravel. 1.2 m **RESIDUAL SHALE** Slightly moist, yellowish - green, stiff, gravelly CLAY. Gravel consists of fine to medium, sub-angular abundant shale. 1.8 m **VERY SOFT ROCK SHALE** Moderately weathered, greenish - grey, stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 3 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as sandy gravel.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.5 - 1.2 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP22**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183207.42**
Proj. No.:	**PE310**	Northing (Y):	**64135.75**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	
			RESIDUAL SHALE Fine to coarse, sub-rounded to sub-angular tightly packed GRAVEL of slightly weathered shale in a matrix of dry green and white, silty clay. Overall consistency is dense. 1.4 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Slightly weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP23**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182947.68**
Proj. No.:	**PE310**	Northing (Y):	**64136.86**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
56	○		AEOLIAN SAND Slightly moist, red brown, loose, clayey SAND with roots. 0.3 m	Excavated as sandy gravel with cobbles.
57	#		VERY SOFT ROCK DOLERITE Highly weathered, reddish orange speckled black and yellow, very highly fractured, medium to coarse grained. 0.8 m	
			Test hole terminated at 0.8 m. refusal on soft rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.0 - 0.3 m (FI) and bulk sample at 0.3 - 0.8 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP24**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182691.08**
Proj. No.:	**PE310**	Northing (Y):	**64138.66**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
58	#		**AEOLIAN SAND** Slightly moist, dark reddish brown, medium dense, clayey SAND with roots. 0.5 m **RESIDUAL SHALE** Fine to medium, sub-angular, closely packed GRAVEL of highly weathered shale in a matrix of slightly moist, greenish - grey, sandy clay. Overall consistency is loose. 0.6 m **SOFT ROCK SHALE** Slightly to moderately weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 1.3 m Test hole terminated at 1.3 m. Refusal on soft rock shale.	Excavated as sandy gravel.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.6 - 1.3 m (FI+MOD+CBR).
4. In-situ thermal test @ 0.5 m.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-23	End:	2024-11-23
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP25**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3182945.27**
Proj. No.:	**PE310**	Northing (Y):	**63887.11**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, red brown, medium dense, silty SAND with roots. 0.5 m STRONGLY CEMENTED HARDPAN CALCRETE Dry, off - white speckled black and orange, very dense, strongly cemented gravelly SAND. 0.7 m Test hole terminated at 0.7 m. Refusal in very dense, strongly cemented calcrete.	Excavated as gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No sample obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP26**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183202.35**
Proj. No.:	**PE310**	Northing (Y):	**63884.29**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, speckled white, medium dense, clayey SAND with minor roots. 0.6 m	
			AEOLIAN SAND Slightly moist, reddish brown speckled yellow and white, medium dense, clayey SAND. 1.4 m	
			RESIDUAL SHALE Fine to coarse, sub-rounded, tightly packed GRAVEL of highly weathered shale in a matrix of moist, greenish grey silty clay. Overall consistency is very dense. 1.9 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP27**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183457.88**
Proj. No.:	**PE310**	Northing (Y):	**63884.72**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	Excavated as sandy gravel.
			VERY SOFT ROCK SHALE Slightly weathered, greenish - grey and white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP28**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183707.42**
Proj. No.:	**PE310**	Northing (Y):	**63886.37**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
59	#		**TOPSOIL** Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.4 m **AEOLIAN SAND** Slightly moist, orange - brown speckled white, medium dense, clayey SAND with minor fine gravel and minor roots. 0.6 m **RESIDUAL SHALE** Fine to medium, greenish - grey, sub-angular to sub-rounded, tightly packed GRAVEL of slightly to moderately weathered shale in a matrix of dry white and yellow, silty sand. Overall consistency is medium dense to dense. 2.1 m **VERY SOFT ROCK SHALE** Slightly weathered, greenish - grey, very thinly bedded, very highly fractured, very fine grained. 3.1 m Test hole terminated at 3.1 m. Maximum reach of TLB.	Excavated as sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.6 - 2.1 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP29**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183958.61**
Proj. No.:	**PE310**	Northing (Y):	**63884.63**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, reddish orange, loose, clayey SAND with minor fine gravel and roots. 0.5 m	Excavated as sandy gravel with cobbles.
			RESIDUAL SHALE Fine to coarse, sub-angular, tightly packed GRAVEL of highly weathered shale in matrix of slightly moist, red brown, sandy clay. Overall consistency is dense. 0.7 m	
			SOFT ROCK SHALE Slightly to moderately weathered, dark grey stained orange and white, thinly bedded, very highly fractured, very fine grained. 1.3 m	
			Test hole terminated at 1.3 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP30**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184209.06**
Proj. No.:	**PE310**	Northing (Y):	**63878.98**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, loose, clayey SANDF with minor fine to medium gravel and roots. 0.5 m	
			RESIDUAL SHALE Slightly moist, reddish orange speckled yellow and white, medium dense gravelly silty sand. Gravel consist of fine, sub-angular, abundant weathered shale and calcrete. 0.6 m	
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed GRAVEL of slightly to moderately weathered shale and calcrete in a matrix moist, greenish - grey and white, clayey sand. Overall consistency is medium dense. 2.2 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Moderately weathered, greenish - grey stained orange, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP31**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184449.11**
Proj. No.:	**PE310**	Northing (Y):	**63876.87**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
60			**AEOLIAN SAND** Slightly moist, reddish - orange, medium dense, clayey SAND with roots. 0.6 m	Excavated as gravelly sand, cobbles and small boulders.
			SOFT ROCK DOLERITE Moderately weathered, dark grey speckled yellow stained white, very highly fractured, coarse grained. 0.8 m	
			Test hole terminated at 0.8 m. Refusal in soft hard rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Block sample at 0.0 - 0.6 m (FI+CP).

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP32**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184441.6**
Proj. No.:	**PE310**	Northing (Y):	**63628.27**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
61	#		**AEOLIAN SAND** Slightly moist, reddish - orange, loose, clayey SAND with minor fine gravel and roots. 0.1 m **SOFT ROCK DOLERITE** Moderately weathered, dark grey stained orange brown, very highly fractured, medium to coarse grained. 0.4 m Test hole terminated at 0.4 m. Refusal in soft rock dolerite.	Excavated as gravel, cobbles and small boulders.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.1 - 0.4 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP33**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184204.31**
Proj. No.:	**PE310**	Northing (Y):	**63629.24**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
62			**AEOLIAN SAND** Slightly moist, reddish - orange, loose, clayey SAND with roots and minor fine gravel. 0.3 m **SOFT ROCK DOLERITE** Moderately weathered, dark grey stained orange - brown and white, very highly fractured, medium to coarse grained. 0.4 m Test hole terminated at 0.4 m. Refusal in medium hard rock dolerite.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.0 - 0.3 m. (FI+MOD+CBR) and block sample at 0.1 - 0.2 m (FI+CP).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP34**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183956.76**
Proj. No.:	**PE310**	Northing (Y):	**63632.8**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Dry, reddish - orange, medium dense, clayey SAND with roots and minor fine gravel. 0.2 m	Excavated as sandy gravel, cobbles and small boulders.
			RESIDUAL SHALE Fine to coarse, sub-angular to angular, tightly packed GRAVEL of weathered shale in a matrix of dry to slightly moist, dark red brown, silty clay. Overall consistency is medium dense. 0.5 m	
			VERY SOFT ROCK SHALE Moderately to highly weathered, greenish - grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 0.7 m	
			Soft Rock Calcified Shale Slightly weathered, dark grey stained white, very thinly bedded, very highly fractured, very fine grained. 1.1 m	
			Test hole terminated at 1.1 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP35**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183711.72**
Proj. No.:	**PE310**	Northing (Y):	**63629.49**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			AEOLIAN SAND Slightly moist, dark reddish - brown, medium dense, clayey SAND with minor fine gravel and roots. 0.25 m	Excavated as sandy gravel, cobbles and small boulders.
			RESIDUAL SHALE Fine to coarse sub-angular to angular, tightly packed GRAVEL of weathered shale in a matrix of moist, dark red blotched orange, sandy clay. Overall consistency is very dense. 0.5 m	
			VERY SOFT ROCK SHALE Moderately weathered, dark grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 0.6 m	
			SOFT ROCK SHALE Slightly weathered, dark grey stained orange and white, thinly bedded, very highly fractured, very fine grained. 1.6 m	
			Test hole terminated at in soft rock shale. Slow material recovery.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-26	End:	2024-11-26
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP36**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183459.32**
Proj. No.:	**PE310**	Northing (Y):	**63636.07**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
64			**AEOLIAN SAND** Dry, reddish brown, very loose, clayey SAND with roots. 0.2 m **RESIDUAL SHALE** Medium to coarse, angular, tightly packed GRAVEL of slightly weathered shale in a matrix of slightly moist, greenish - grey, clayey sand. Overall consistency is medium dense. 0.5 m **SOFT ROCK SHALE** Slightly to moderately weathered, dark grey stained orange, thinly bedded, very highly fractured, very fine grained. 0.7 m Test hole terminated at 0.7 m. Refusal in soft rock shale.	Excavated as sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.0 - 0.2 m (FI).
4. In-situ thermal resistivity test @ 0.10 m.

smec an Su company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-23	End:	2024-11-23
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP37**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183207.87**
Proj. No.:	**PE310**	Northing (Y):	**63637.2**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
65	#		**TOPSOIL** Moist, dark brown, loose, clayey with minor fine gravel and roots. 0.4 m **RESIDUAL SHALE** Fine to coarse, sub-angular, tightly packed GRAVEL of highly weathered shale in a matrix of moist, greenish - grey silty clay. Overall consistency is loose. 0.7 m **SOFT ROCK SHALE** Highly to moderately weathered, greenish - grey stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 1.4 m Test hole terminated at 1.4 m. Refusal in soft rock shale.	Excavated as sandy gravel with cobbles.

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 0.4 - 0.7 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-25	End:	2024-11-25
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP38**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183710.54**
Proj. No.:	**PE310**	Northing (Y):	**63372.78**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
66			**AEOLIAN SAND** Slightly moist, reddish brown, loose, clayey SAND with roots and minor fine gravel. 0.5 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Slightly to moderately weathered, greenish - grey stained orange and white, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Indicator sample at 0.0 - 0.5 m (FI).

smec an Sd company

Contractor: Roadlab (Pty) Ltd. Start: 2024-11-27 End: 2024-11-27
Plant: CAT428F TLB Logged By: S. Gina Reviewer: A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP39**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183959.36**
Proj. No.:	**PE310**	Northing (Y):	**63382.82**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown speckled white, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	
			AEOLIAN SAND Slightly moist, reddish orange speckled yellow, medium dense clayey SAND. 1 m	
			RESIDUAL SHALE Fine to coarse, sub-angular, closely packed GRAVEL of moderately weathered shale in a matrix of slightly moist, greenish - grey clayey sand. Overall consistency is medium dense. 1.9 m	Excavated as sandy gravel with cobbles.
			VERY SOFT ROCK SHALE Highly weathered, greenish - grey stained orange on joints, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP40**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3184207.19**
Proj. No.:	**PE310**	Northing (Y):	**63378.86**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark reddish brown, medium dense, clayey SAND with minor fine gravel and roots. 0.5 m	Excavated as sandy gravel cobbles and small boulders up to 0.4 m diameter.
			RESIDUAL SHALE Fine to medium, sub-angular, tightly packed, GRAVEL of highly weathered shale in a matrix of slightly moist, grey stained orange and white, clayey sand. Overall consistency is medium dense. 0.6 m	
			SOFT ROCK SHALE Moderately weathered, dark grey stained orange and white, thinly bedded, very highly fractured, very fine grained. 1.3 m	
			Test hole terminated at 1.3 m. Refusal in soft rock shale.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. No samples obtained.

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-27	End:	2024-11-27
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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AFRICAN CLEAN ENERGY DEVELOPMENTS

Client:	**African Clean Energy Developments (Pty) Ltd**	TP. No.	**PV5 TP41**
Project:	**Notsi 475 MW Solar Project**	Easting (X):	**3183958.33**
Proj. No.:	**PE310**	Northing (Y):	**63131.64**
Date:	**12/02/2025**	Elevation:	
Contractor:	**Roadlab (Pty) Ltd.**	Page:	**1 of 1**

Samples No.	Samples Type	Legend	Lithologic Description	Comments / Additional Notes
			Ground Surface	
			TOPSOIL Slightly moist, dark brown, medium dense, clayey SAND with minor fine gravel and roots. 0.6 m	
67	#		**AEOLIAN SAND** Slightly moist, reddish brown, loose, clayey SAND with minor fine gravel. 1 m	
			RESIDUAL SHALE Fine to medium, sub-angular, closely packed GRAVEL of weathered shale in a matrix of slightly moist, yellowish brown and white silty sand. Overall consistency is dense. 1.8 m	Excavated as sandy gravel with cobbles.
			Very Soft Rock Shale Moderately weathered, greenish - grey stained brown, very thinly bedded, very highly fractured, very fine grained. 3.1 m	
			Test hole terminated at 3.1 m. Maximum reach of TLB.	

Notes:
1. No groundwater.
2. No sidewall collapse.
3. Bulk sample at 1.0 - 1.8 m (FI+MOD+CBR).

smec an Sd company

Contractor:	Roadlab (Pty) Ltd.	Start:	2024-11-28	End:	2024-11-28
Plant:	CAT428F TLB	Logged By:	S. Gina	Reviewer:	A. Nxumalo (PrSciNat 400285/16)

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Appendix C : Drawings

LEGEND

PV1 Test Pits(TP's)
Thermal Resistivity TP's
PV1 Boundary
Restricted Area

PV1 Coordinates

TP No.	Name	x	y
1	PV1-TP1	3180939.52	-62912.84
2	PV1-TP2	3180687.59	-62651.69
3	PV1-TP3	3180940.72	-62661.64
4	PV1-TP4	3181193.63	-62660.79
5	PV1-TP5	3181444.50	-62665.33
6	PV1-TP6	3181693.18	-62411.34
7	PV1-TP7	3181443.18	-62415.52
8	PV1-TP8	3181205.59	-62413.18
9	PV1-TP9	3181194.91	-62161.56
10	PV1-TP10	3181448.25	-62163.31
11	PV1-TP11	3181695.15	-62163.06
12	PV1-TP12	3181947.61	-62162.45
13	PV1-TP13	3181946.75	-61910.47
14	PV1-TP14	3181693.86	-61914.39
15	PV1-TP15	3181448.15	-61914.80
16	PV1-TP16	3181189.99	-61909.26
17	PV1-TP17	3181190.70	-61658.26
18	PV1-TP18	3181441.54	-61665.66
19	PV1-TP19	3181693.71	-61665.34
20	PV1-TP20	3181948.43	-61660.98
21	PV1-TP21	3181946.75	-61409.03
22	PV1-TP22	3181445.20	-61414.62
23	PV1-TP23	3181185.70	-61408.24
24	PV1-TP24	3181431.88	-61164.79
25	PV1-TP25	3181684.58	-60935.64
26	PV1-TP26	3181932.38	-60938.02
27	PV1-TP27	3181927.09	-60686.05
28	PV1-TP28	3181681.38	-60685.76
29	PV1-TP29	3181429.92	-60685.75
30	PV1-TP30	3181428.23	-60436.97
31	PV1-TP31	3181677.09	-60436.43
32	PV1-TP32	3181928.96	-60430.00
33	PV1-TP33	3181677.30	-60183.16
34	PV1-TP34	3181426.41	-60182.12
35	PV1-TP35	3181174.01	-60179.22
36	PV1-TP36	3180927.35	-59922.04
37	PV1-TP37	3181179.84	-59923.43

Project : Nosti 475 MW Solar PV

Title : PV1 Test Pit Layout

Document Release

Rev.	Date	Revision Details	Designed	Drawn	Checked	Approved
01	2025/15/01					

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Scale:	1:1000	Sheet Size:	A3
		SHEET NO.	01
Drawing no.		SMEC/PE310/PV1/01	
REV.		01	

LEGEND	
PV2 Test Pits	
PV2 Boundary	

PV2 Coordinates			
38	PV2-TP1	3182189.81	-60892.23
39	PV2-TP2	3182443.05	-60895.19
40	PV2-TP3	3182696.93	-60888.84
41	PV2-TP4	3182699.04	-61140.28
42	PV2-TP5	3182444.93	-61145.34
43	PV2-TP6	3182191.76	-61144.55
44	PV2-TP7	3182193.88	-61393.34
45	PV2-TP8	3182444.67	-61389.70
46	PV2-TP9	3182703.42	-61391.31
47	PV2-TP10	3182702.11	-61641.47
48	PV2-TP11	3182447.71	-61642.38
49	PV2-TP12	3182197.80	-61644.66
50	PV2-TP13	3182199.62	-61895.20
51	PV2-TP14	3182447.54	-61895.15
52	PV2-TP15	3182700.73	-61893.25
53	PV2-TP16	3182701.42	-62142.69
54	PV2-TP17	3182449.78	-62146.90
55	PV2-TP18	3182198.10	-62147.60
56	PV2-TP19	3182200.13	-62398.91
57	PV2-TP20	3182451.52	-62398.07
58	PV2-TP21	3182701.37	-62395.81
59	PV2-TP22	3182197.17	-62654.74
60	PV2-TP23	3181944.10	-62662.17
61	PV2-TP24	3181948.04	-62409.64
62	PV2-TP25	3181690.80	-62662.47
63	PV2-TP26	3181696.47	-62913.38
64	PV2-TP27	3181441.67	-62912.30
65	PV2-TP28	3181192.45	-62912.52



Project : Notsi 475MW Solar PV

Title : PV2 Test Pit Layout

Document Release

Rev.	Date	Revision Details	Designed	Drawn	Checked	Approved
01	2025/01/15					

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		SHEET NO.	02
Drawing no.		SMEC/PE310/PV2/01	
REV.		01	



PV3 Coordinates			
TP No.	Name	x	y
66	PV3-TP1	3183694.24	-61625.34
67	PV3-TP2	3183445.35	-61625.77
68	PV3-TP3	3183194.51	-61629.14
69	PV3-TP4	3182945.80	-61630.55
70	PV3-TP5	3182943.80	-61381.33
71	PV3-TP6	3183192.77	-61378.24
72	PV3-TP7	3183444.03	-61377.15
73	PV3-TP8	3183440.30	-61126.53
74	PV3-TP9	3183191.25	-61127.66
75	PV3-TP10	3182942.43	-61129.87
76	PV3-TP11	3182946.47	-60880.69
77	PV3-TP12	3183189.31	-60876.82
78	PV3-TP13	3183189.75	-60626.20
79	PV3-TP14	3182942.61	-60630.80
80	PV3-TP15	3182692.81	-60636.55
81	PV3-TP16	3182443.15	-60641.07
82	PV3-TP17	3182188.69	-60389.43
83	PV3-TP18	3182438.70	-60388.22
84	PV3-TP19	3182690.03	-60387.90
85	PV3-TP20	3182940.71	-60381.16
86	PV3-TP21	3182685.47	-60136.33
87	PV3-TP22	3182435.12	-60137.70
88	PV3-TP23	3182184.62	-60139.34
89	PV3-TP24	3181933.99	-60140.05
90	PV3-TP25	3181429.97	-59897.15
91	PV3-TP26	3181932.42	-59890.06
92	PV3-TP27	3182184.92	-59887.65
93	PV3-TP28	3182437.23	-59887.56
94	PV3-TP29	3182182.54	-59637.38
95	PV3-TP30	3181930.12	-59639.92
96	PV3-TP31	3181681.98	-59641.63
97	PV3-TP32	3181429.10	-59647.01
98	PV3-TP33	3181177.59	-59647.22
99	PV3-TP34	3181429.78	-59396.33
100	PV3-TP35	3181681.25	-59391.96
101	PV3-TP36	3181930.39	-59391.07
102	PV3-TP37	3181680.12	-59142.70

Project : Notsi 475MW Solar PV

Title : PV3 Test Pit Layout

Document Release

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		SHEET NO.	03
Drawing no.		SMEC/PE310/PV3/01	
REV.		01	

LEGEND

PV4 Test Pits

PV4 Boundary

PV4 Coordinates

TP No	Name	x	y
103	PV4-TP1	3182956.92	-63644.31
104	PV4-TP2	3182705.10	-63396.32
105	PV4-TP3	3182956.55	-63389.61
106	PV4-TP4	3183206.59	-63385.99
107	PV4-TP5	3183457.30	-63382.77
108	PV4-TP6	3183708.44	-63121.86
109	PV4-TP7	3183457.90	-63131.24
110	PV4-TP8	3183205.93	-63135.59
111	PV4-TP9	3182955.50	-63135.77
112	PV4-TP10	3182954.18	-62883.50
113	PV4-TP11	3183204.26	-62884.25
114	PV4-TP12	3183458.33	-62881.84
115	PV4-TP13	3183704.80	-62871.37
116	PV4-TP14	3183957.00	-62879.79
117	PV4-TP15	3183954.65	-62631.19
118	PV4-TP16	3183706.30	-62621.03
119	PV4-TP17	3183457.54	-62631.41
120	PV4-TP18	3183205.29	-62635.17
121	PV4-TP19	3182953.35	-62635.85
122	PV4-TP20	3183704.09	-62377.89
123	PV4-TP21	3183955.05	-62380.44
124	PV4-TP22	3183698.97	-62128.51

PV4-TP2
PV4-TP19
PV4-TP10
PV4-TP9
PV4-TP1
PV4-TP3
PV4-TP18
PV4-TP11
PV4-TP8
PV4-TP4
PV4-TP17
PV4-TP12
PV4-TP7
PV4-TP5
PV4-TP22
PV4-TP20
PV4-TP16
PV4-TP13
PV4-TP6
PV4-TP21
PV4-TP15
PV4-TP14

Project : Notsi 475MW Solar PV

Title : PV4 Test Pit Layout

Document Release

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		SHEET NO.	04
Drawing no.		SMEC/PE310/PV4/01	
REV.		01	



PV5 Coordinates			
TP No.	Name	x	y
125	PV5-TP1	3182956.78	-64888.37
126	PV5-TP2	3183209.82	-64886.52
127	PV5-TP3	3183462.58	-64884.54
128	PV5-TP4	3183710.55	-64883.62
129	PV5-TP5	3183958.10	-64631.68
130	PV5-TP6	3183714.83	-64632.48
131	PV5-TP7	3183457.67	-64634.18
132	PV5-TP8	3183208.89	-64635.70
133	PV5-TP9	3182955.43	-64636.49
134	PV5-TP10	3182694.26	-64388.53
135	PV5-TP11	3182954.01	-64388.16
136	PV5-TP12	3183208.25	-64387.43
137	PV5-TP13	3183457.73	-64386.34
138	PV5-TP14	3183720.77	-64385.43
139	PV5-TP15	3183957.65	-64385.67
140	PV5-TP16	3184206.87	-64384.69
141	PV5-TP17	3184450.01	-64125.55
142	PV5-TP18	3184205.14	-64130.75
143	PV5-TP19	3183953.21	-64134.10
144	PV5-TP20	3183718.79	-64136.65
145	PV5-TP21	3183459.75	-64131.23
146	PV5-TP22	3183207.42	-64135.75
147	PV5-TP23	3182947.68	-64136.86
148	PV5-TP24	3182691.08	-64138.66
149	PV5-TP25	3182945.27	-63887.11
150	PV5-TP26	3183202.35	-63884.29
151	PV5-TP27	3183457.88	-63884.72
152	PV5-TP28	3183707.42	-63886.37
153	PV5-TP29	3183958.61	-63884.63
154	PV5-TP30	3184209.06	-63878.98
155	PV5-TP31	3184449.11	-63876.87
156	PV5-TP32	3184441.60	-63628.27
157	PV5-TP33	3184204.31	-63629.24
158	PV5-TP34	3183956.76	-63632.80
159	PV5-TP35	3183711.72	-63629.49
160	PV5-TP36	3183459.32	-63636.07
161	PV5-TP37	3183207.87	-63637.20
162	PV5-TP38	3183710.54	-63372.78
163	PV5-TP39	3183959.36	-63382.82
164	PV5-TP40	3184207.19	-63378.86
165	PV5-TP41	3183958.33	-63131.64

Project : Notsi 475MW Solar PV

Title : PV5 Test Pit Layout

Document Release

Rev.	Date	Revision Details	Designed	Drawn	Checked	Approved
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Bloemfontein Branch
Rudolf Greyling St, Linquinda, Bloemfontein, Free State
bloemfontein@roadlab.co.za
060 727 8002

Roadlab Job Number: RB7627

Date of Report : 19.03.2025
Date of Sampled : 12.12.2024

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention:Mr.Ayanda Nxumalo

Dear Sir/ Madam

TEST REPORT

Project Name: **Notsi Solar PV**

Herewith the laboratory test results for above mentioned project, as per request.
As per the test report the following tests have been conducted

TEST METHODS

1.) Wet preparation and particle size analysis	**SANS 3001: GR1**
2.) Determination of the one-point liquid limit, plastic limit, plasticity index and linear shrinkage	**SANS 3001: GR10**
3.) Determination of the liquid limit with the two-point method	**SANS 3001: GR11**
4.) Determination of the maximum dry density and optimum moisture content	**SANS 3001: GR30 & GR20**
5.) Determination of the california bearing ratio	**SANS 3001: GR40**
6.) Foundation Indicator	**SANS 3001:GR3**

Kind Regards

NOTE : Test marked with # is not part of Facility s accreditation scope of work

Solomon Lediga
Manager/Technical Signatory

T1143

Remarks :
*Opinions & Interpretations are not included in our schedule of Accreditation
SANAS Accredited Laboratory No. T 1143
The samples were subjected to analysis according to SANS 3001
The results reported relate only to the sample tested
Further use of the above information is not the responsibility or liability of Roadlab
Test results may only be reproduced or published in their full context with prior approval from the Technical Manager of Roadlab.
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Bloemfontein Branch
Rudolf Greyling St, Linquinda, Bloemfontein, Free State
bloemfontein@roadlab.co.za
060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15710	B15711		
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags		
SIZE / WEIGHT OF SAMPLE		-+101kg	-+99,kg		
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist		
HOLE No. / Km. / CHAINAGE		PV1-TP 05	PV1- TP 5		
ROAD NO OR NAME		Solar PV	Solar PV		
LAYER TESTED / SAMPLED FROM		0.00-0.40mm	0.40-0.70mm		
DATE SAMPLED		04.12.2024	08.12.2024		
DATE RECEIVED		04.12.2024	08.12.2024		
CLIENTS MARKING		Solar PV	Solar PV		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Dark Brown Clayey Sand	Dark Brown Sandy Gravel		
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100		
	75.0	100	100		
	63.0	100	100		
	50.0	100	100		
	37.5	100	98		
	28.0	100	96		
	20.0	100	89		
	14.0	95	74		
	5.0	92	72		
	2.00	89	70		
	0.425	84	69		
	0.075	49	6		
SANS 3001 - PR5					
Soil Mortar		89	70		
Coarse Sand		4.8	1.0		
Fine Sand		40	90		
Coarse Fine Sand		21	9		
Medium Fine Sand		14	38		
Fine Fine Sand		6	43		
Silt & Clay		55	9		
Coarse Sand Ratio		0.05	0.01		
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	22	26		
	P.I. (0.425mm)	6	8		
	LS%	3	3		
	P.I. (0.075mm)	-	-		-
GM		0.79	1.55		
CLASSIFI - CATION	H.R.B.*	A-4(3)	A-2-4(0)		
	COLTO*	G8	G7		
	T.R.H. 14*	G9	G7		
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	8.1	9.9		
	MDD(KG/M^3)	1850	2030		
C.B.R.	COMP MC	8.1	0.5		
	% SWELL	0.20	0.30		
C.B.R. (SANS GR40)	100%	22	31		
	98%	18	25		
	97%	16	23		
	95%	12	19		
	93%	10	17		
	90%	9	14		
MOD ITS : DRY (kPa) (GR54)		N/S	N/S		
PROCTOR ITS : DRY (kPa)		N/S	N/S		
STABILISED WITH	IN LAB	N/S	N/S		
	ON SITE	N/S	N/S		
TEST TYPE		CBR/IND	CBR/IND		
SAMPLED BY		Client	Client		
DELIVERED BY		Client	Client		
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**		
ENVIRONMENTAL CONDITION WHEN SAMPLED		Sunny Hot	Sunny Hot		
REMARKS & NOTES		N/S	N/S		

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
*Opinions & Interpretations are not included in our schedule of Accreditation
The samples were subjected to analysis according to SANS T1143
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bloemfontein@roadlab.co.za
060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15883	B15884	B15886	
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	
SIZE / WEIGHT OF SAMPLE		-+98kg	-+100,kg	-+98,kg	
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	
HOLE No. / Km. / CHAINAGE		PV1-TP 02	PV1-TP 07	PV1-TP 29	
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	
LAYER TESTED / SAMPLED FROM		0.4-1.30mm	0.00-0.40mm	0.90-3.00mm	
DATE SAMPLED		03.12.2025	03.12.2025	03.12.2025	
DATE RECEIVED		03.12.2025	03.12.2025	03.12.2025	
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Dark Brown Gravel Sand Dolerite	N/S Clayey Sand	N/S ndy & Completely Weathered Doleri	
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS (SANS GR1:2010)	100.0	100	100	100	
	75.0	100	100	100	
	63.0	100	100	97	
	50.0	98	100	94	
	37.5	96	100	89	
	28.0	95	100	84	
	20.0	94	100	77	
	14.0	94	100	77	
	5.0	83	100	67	
	2.00	57	96	57	
	0.425	21	79	25	
	0.075	7	23	9	
SANS 3001 - PR5					
Soil Mortar		57	96	57	
Coarse Sand		62.6	17.6	57	
Fine Sand		25	59	28	
Coarse Fine Sand		11	7	10	
Medium Fine Sand		8	18	10	
Fine Fine Sand		6	34	7	
Silt & Clay		13	24	16	
Coarse Sand Ratio		0.63	0.18	0.57	
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS (SANSGR10;GR11)	LL%	27	21		
	P.I. (0.425mm)	11	4	NP	
	LS%	5	2		
	P.I. (0.075mm)	-	-	-	-
GM		2.15	1.03	2.09	
CLASSIFI - CATION	H.R.B.*	A-2-6(0)	A-2-4(0)	A-2-4(0)	
	COLTO*	G6	G7	G7	
	T.R.H. 14*	G6	G7	G8	
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO (SANS GR30)	OMC%	7.4	9.6	5.8	
	MDD(KG/M^3)	2160	2069	2080	
C.B.R.	COMP MC	7.5	9.6	5.8	
	% SWELL	0.30	0.15	0.28	
C.B.R. (SANS GR40)	100%	52	43	26	
	98%	41	33	23	
	97%	36	29	22	
	95%	31	22	10	
	93%	27	17	18	
	90%	22	11	15	
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	
STABILISED WITH	IN LAB	N/S	N/S	N/S	
	ON SITE	N/S	N/S	N/S	
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	
SAMPLED BY		Client	Client	Client	
DELIVERED BY		Client	Client	Client	
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	
REMARKS & NOTES		N/S	N/S	N/S	

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
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060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B1			
CONTAINER USED FOR SAMPLING		Sampling Bags			
SIZE / WEIGHT OF SAMPLE		-+99kg			
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist			
HOLE No. / Km. / CHAINAGE		PV1-TP 33			
ROAD NO OR NAME		Solar PV			
LAYER TESTED / SAMPLED FROM		0.70-3.00mm			
DATE SAMPLED		22.11.2024			
DATE RECEIVED		22.11.2024			
CLIENTS MARKING		Solar PV			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Light Brown Calcrete Shale			
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100			
	75.0	100			
	63.0	100			
	50.0	98			
	37.5	97			
	28.0	89			
	20.0	79			
	14.0	79			
	5.0	76			
	2.00	66			
	0.425	54			
	0.075	45			
SANS 3001 - PR5					
Soil Mortar		66			
Coarse Sand		17.8			
Fine Sand		15			
Coarse Fine Sand		4			
Medium Fine Sand		5			
Fine Fine Sand		6			
Silt & Clay		68			
Coarse Sand Ratio		0.18			
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	39			
	P.I. (0.425mm)	12			
	LS%	7			
	P.I. (0.075mm)	-			-
GM		1.35			
CLASSIFI - CATION	H.R.B.*	A-6(3)			
	COLTO*	G7			
	T.R.H. 14*	G6			
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	8.4			
	MDD(KG/M^3)	2020			
C.B.R.	COMP MC	8.6			
	% SWELL	0.20			
C.B.R. (SANS GR40)	100%	48			
	98%	41			
	97%	36			
	95%	31			
	93%	26			
	90%	22			
MOD ITS : DRY (kPa) (GR54)		N/S			
PROCTOR ITS : DRY (kPa)		N/S			
STABILISED WITH	IN LAB	N/S			
	ON SITE	N/S			
TEST TYPE		CBR/IND			
SAMPLED BY		Client			
DELIVERED BY		Client			
SAMPLING METHOD		**Sampled by the Client**			
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S			
REMARKS & NOTES		N/S			

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
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The samples were subjected to analysis according to SANS T1143
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Bloemfontein Branch
Rudolf Greyling St, Linquinda, Bloemfontein, Free State
bloemfontein@roadlab.co.za
060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15887	B15910	B15911	B15908
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	Sample Bag
SIZE / WEIGHT OF SAMPLE		-+99kg	-+99,kg	-+98,kg	106,Kg
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	Slightly Moist
HOLE No. / Km. / CHAINAGE		PV2-TP 02	PV2- TP 13	PV2- TP 19	PV9-TP9
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	Solar PV
LAYER TESTED / SAMPLED FROM		1.40-3.10mm	0.00-0.40mm	0.90-1.50mm	1,90-3,10
DATE SAMPLED		04.12.2024	08.12.2024	02.12.2025	02.12.2025
DATE RECEIVED		04.12.2024	08.12.2024	02.12.2025	02.12.2025
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	Solar PV
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Light Reddish Brown Gravelly Clay	Light Brown Silty Sandy	dark Brown Shale Sandy Clay	Dark Brown Sandy Gravel
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS (SANS GR1:2010)	100.0	100	100	100	
	75.0	100	100	93	100
	63.0	100	100	93	100
	50.0	100	100	90	93
	37.5	100	100	88	90
	28.0	100	100	85	87
	20.0	100	100	83	86
	14.0	87	100	83	84
	5.0	84	100	72	81
	2.00	81	100	60	54
	0.425	78	99	46	14
	0.075	41	9	21	5
SANS 3001 - PR5					
Soil Mortar		81	100	60	54
Coarse Sand		3.7	0.7	24	73.5
Fine Sand		46	90	40	18
Coarse Fine Sand		35	9	9	8
Medium Fine Sand		4	38	14	5
Fine Fine Sand		6	44	17	4
Silt & Clay		51	9	36	9
Coarse Sand Ratio		0.04	0.01	0.24	0.74
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS (SANSGR10;GR11)	LL%	48		32	22
	P.I. (0.425mm)	15	NP	6	6
	LS%	8		4	3
	P.I. (0.075mm)	-	-	-	-
GM		1.01	0.92	1.73	2.26
CLASSIFI - CATION	H.R.B.*	A-7-5(3)	A-3(0)	A-3(0)	A-1-b(0)
	COLTO*	<G9	G9	G7	G7
	T.R.H. 14*	G9	G10	G8	G7
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO (SANS GR30)	OMC%	13.8	9.5	13.9	6.8
	MDD(KG/M^3)	1865	1899	1763	2061
C.B.R.	COMP MC	14.1	9.5	13.9	6.2
	% SWELL	0.50	0.06	0.28	0.20
C.B.R. (SANS GR40)	100%	31	21	33	38
	98%	26	16	28	29
	97%	20	14	26	23
	95%	13	11	23	20
	93%	11	9	20	16
	90%	9	6	16	13
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	N/S
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	N/S
STABILISED WITH	IN LAB	N/S	N/S	N/S	N/S
	ON SITE	N/S	N/S	N/S	N/S
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	CBR/IND
SAMPLED BY		Client	Client	Client	Client
DELIVERED BY		Client	Client	Client	Client
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	N/S
REMARKS & NOTES		N/S	N/S	N/S	N/S

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

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060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15896	B15888	B16158	B16258
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bag	Sampling Bags
SIZE / WEIGHT OF SAMPLE		-+97kg	-+99,kg	105Kg	105 Kg
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Moist	Moist
HOLE No. / Km. / CHAINAGE		PV3-TP 30	PV3- TP 37	PV3 - TP1	PV 3 TP 23
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	Solar PV
LAYER TESTED / SAMPLED FROM		0.30-1.50mm	0.50-1.1mm	0,50-1,10	0,0-0,40
DATE SAMPLED		30.11.2024	27.11.2024	30.11,2024	27,11.2024
DATE RECEIVED		30.11.2024	27.11.2024	30,11,2024	27.11.2024
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	Solar PV
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Light Brown Sand Gravelly -Calcrete	Orange Brown Clayey Sand	Dark Brown Clayey Sand	Orange Brown Clayey Sand
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100	100	100
	75.0	100	100	100	100
	63.0	100	100	100	100
	50.0	100	100	100	100
	37.5	100	100	100	100
	28.0	100	100	100	100
	20.0	100	100	100	100
	14.0	100	100	100	99
	5.0	94	99	96	97
	2.00	86	98	88	90
	0.425	70	97	71	89
	0.075	53	74	33	15
SANS 3001 - PR5					
Soil Mortar		86	98	97	90
Coarse Sand		18.1	1.6	16.0	1.9
Fine Sand		21	23	47	82
Coarse Fine Sand		4	3	5	4
Medium Fine Sand		8	7	18	8
Fine Fine Sand		8	13	25	70
Silt & Clay		61	75	36	16
Coarse Sand Ratio		0.18	0.02	0.20	0.02
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	52	48	22	50
	P.I. (0.425mm)	16	22	5	23
	LS%	9	11	2	11
	P.I. (0.075mm)	-	-	-	-
GM		0.91	0.31	1.08	1.07
CLASSIFI - CATION	H.R.B.*	A-7-5(7)	A-7-6(14)	A-1-b(0)	A-2-7(0)
	COLTO*	<G9	<G9	G6	<G9
	T.R.H. 14*	<G10	G10	G6	G9
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	13.8	14.4	8.5	13.9
	MDD(KG/M^3)	1613	1658	2096	1669
C.B.R.	COMP MC	14.0	14.3	8.3	14.2
	% SWELL	1.60	1.30	0.40	1.20
C.B.R. (SANS GR40)	100%	18	26	68	27
	98%	16	21	51	22
	97%	13	18	42	18
	95%	9	13	33	14
	93%	7	10	26	11
	90%	6	6	19	7
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	N/S
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	N/S
STABILISED WITH	IN LAB	N/S	N/S	N/S	N/S
	ON SITE	N/S	N/S	N/S	N/S
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	CBR/IND
SAMPLED BY		Client	Client	Client	Client
DELIVERED BY		Client	Client	Client	Client
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	**Sample by Client**
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	N/S
REMARKS & NOTES		N/S	N/S	N/S	N/S

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

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RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15891	B15914	B15894	
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	
SIZE / WEIGHT OF SAMPLE		-+97kg	-+98,kg	-+97,kg	
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	
HOLE No. / Km. / CHAINAGE		PV3-TP 15	PV3- TP 13	PV3- TP 18	
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	
LAYER TESTED / SAMPLED FROM		0.30-0.80mm	0.3-1.20mm	1.50-3.10mm	
DATE SAMPLED		29.11.2024	29.11.2024	30.11.2024	
DATE RECEIVED		29.11.2024	29.11.2024	30.11.2024	
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		N/S Gravelly Sand	N/S Silty Sandy	Sandy Gravel Completely Weathered Dolerite	
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS (SANS GR1:2010)	100.0	100	100	100	
	75.0	100	100	100	
	63.0	100	100	100	
	50.0	92	100	100	
	37.5	84	97	99	
	28.0	77	96	97	
	20.0	67	94	93	
	14.0	65	94	93	
	5.0	50	79	82	
	2.00	40	52	56	
	0.425	19	21	34	
	0.075	9	6	19	
SANS 3001 - PR5					
Soil Mortar		40	52	56	
Coarse Sand		52.7	59.3	38	
Fine Sand		25	30	28	
Coarse Fine Sand		9	11	11	
Medium Fine Sand		9	9	9	
Fine Fine Sand		8	9	7	
Silt & Clay		22	11	34	
Coarse Sand Ratio		0.53	0.59	0.38	
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS (SANSGR10;GR11)	LL%			56	
	P.I. (0.425mm)	NP	NP	9	
	LS%			5	
	P.I. (0.075mm)	-	-	-	-
GM		2.33	2.21	1.91	
CLASSIFI - CATION	H.R.B.*	A-1-a(0)	A-1-b(0)	A-1-b(0)	
	COLTO*	G6	G7	G6	
	T.R.H. 14*	G6	G7	G6	
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO (SANS GR30)	OMC%	3.7	8.3	9.1	
	MDD(KG/M^3)	2154	1944	1998	
C.B.R.	COMP MC	3.7	8.3	9.1	
	% SWELL	0.09	0.16	0.12	
C.B.R. (SANS GR40)	100%	45	50	39	
	98%	39	36	36	
	97%	36	31	34	
	95%	32	22	32	
	93%	27	16	29	
	90%	22	10	26	
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	
STABILISED WITH	IN LAB	N/S	N/S	N/S	
	ON SITE	N/S	N/S	N/S	
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	
SAMPLED BY		Client	Client	Client	
DELIVERED BY		Client	Client	Client	
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	
REMARKS & NOTES		N/S	N/S	N/S	

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

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RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15892	B15916	B15818	
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	
SIZE / WEIGHT OF SAMPLE		-+88kg	-+99,kg	-+99,kg	
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	
HOLE No. / Km. / CHAINAGE		PV3-TP 17	PV3- TP 20	PV3- TP 24	
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	
LAYER TESTED / SAMPLED FROM		0.30-1.40mm	0.20-0.80mm	0.00-0.70mm	
DATE SAMPLED		30.11.2024	29.11.2024	30.11.2024	
DATE RECEIVED		30.11.2024	29.11.2024	30.11.2024	
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Light Olive Whitish Sand Gravelly	N/S Clayey Silty	Light Brown Clay	
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS (SANS GR1:2010)	100.0	100	100	100	
	75.0	100	100	100	
	63.0	97	100	100	
	50.0	96	100	100	
	37.5	95	100	100	
	28.0	92	100	100	
	20.0	85	100	100	
	14.0	84	100	97	
	5.0	57	93	97	
	2.00	36	83	95	
	0.425	23	69	89	
	0.075	15	46	26	
SANS 3001 - PR5					
Soil Mortar		36	83	95	
Coarse Sand		35.7	16.8	7	
Fine Sand		21	28	66	
Coarse Fine Sand		5	7	6	
Medium Fine Sand		8	11	25	
Fine Fine Sand		8	10	35	
Silt & Clay		43	55	27	
Coarse Sand Ratio		0.36	0.17	0.07	
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS (SANSGR10;GR11)	LL%	43	43	38	
	P.I. (0.425mm)	7	7	14	
	LS%	4	4	5	
	P.I. (0.075mm)	-	-	-	-
GM		2.26	1.01	0.91	
CLASSIFI - CATION	H.R.B.*	A-2-5(0)	A-5(2)	A-5(2)	
	COLTO*	G7	G7	<G9	
	T.R.H. 14*	G8	G7	G10	
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO (SANS GR30)	OMC%	8.3	13.6	13.2	
	MDD(KG/M^3)	1893	1861	1695	
C.B.R.	COMP MC	8.3	13.6	13.8	
	% SWELL	0.16	0.09	0.20	
C.B.R. (SANS GR40)	100%	35	34	21	
	98%	28	29	19	
	97%	25	26	13	
	95%	21	21	9	
	93%	17	18	7	
	90%	13	13	5	
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	
STABILISED WITH	IN LAB	N/S	N/S	N/S	
	ON SITE	N/S	N/S	N/S	
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	
SAMPLED BY		Client	Client	Client	
DELIVERED BY		Client	Client	Client	
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	
REMARKS & NOTES		N/S	N/S	N/S	

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
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RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15896	B15		
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags		
SIZE / WEIGHT OF SAMPLE		-+97kg	-+99,kg		
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist		
HOLE No. / Km. / CHAINAGE		PV3-TP 30	PV3- TP 37		
ROAD NO OR NAME		Solar PV	Solar PV		
LAYER TESTED / SAMPLED FROM		0.30-1.50mm	0.50-1.1mm		
DATE SAMPLED		30.11.2024	27.11.2024		
DATE RECEIVED		30.11.2024	27.11.2024		
CLIENTS MARKING		Solar PV	Solar PV		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Light Brown Sand Gravelly	Orange Brown Gravelly Sand		
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100		
	75.0	100	100		
	63.0	100	100		
	50.0	100	100		
	37.5	100	100		
	28.0	100	100		
	20.0	100	100		
	14.0	98	100		
	5.0	93	99		
	2.00	84	98		
	0.425	69	97		
	0.075	51	74		
SANS 3001 - PR5					
Soil Mortar		84	98		
Coarse Sand		18.5	1.6		
Fine Sand		21	23		
Coarse Fine Sand		4	3		
Medium Fine Sand		8	7		
Fine Fine Sand		8	13		
Silt & Clay		61	75		
Coarse Sand Ratio		0.18	0.02		
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	52	48		
	P.I. (0.425mm)	16	22		
	LS%	9	11		
	P.I. (0.075mm)	-	-		-
GM		0.96	0.31		
CLASSIFI - CATION	H.R.B.*	A-7-5(6)	A-7-6(14)		
	COLTO*	<G9	<G9		
	T.R.H. 14*	G10	G10		
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	14.8	13.5		
	MDD(KG/M^3)	1588	1680		
C.B.R.	COMP MC	14.9	13.3		
	% SWELL	1.50	1.20		
C.B.R. (SANS GR40)	100%	16	19		
	98%	13	17		
	97%	11	13		
	95%	9	11		
	93%	7	7		
	90%	3	4		
MOD ITS : DRY (kPa) (GR54)		N/S	N/S		
PROCTOR ITS : DRY (kPa)		N/S	N/S		
STABILISED WITH	IN LAB	N/S	N/S		
	ON SITE	N/S	N/S		
TEST TYPE		CBR/IND	CBR/IND		
SAMPLED BY		Client	Client		
DELIVERED BY		Client	Client		
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**		
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S		
REMARKS & NOTES		N/S	N/S		

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

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Bloemfontein Branch
Rudolf Greyling St, Linquinda, Bloemfontein, Free State
bloemfontein@roadlab.co.za
060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15003	B15897		
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags		
SIZE / WEIGHT OF SAMPLE		-+99kg	-+98,kg		
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist		
HOLE No. / Km. / CHAINAGE		PV4-TP 7	PV4- TP 21		
ROAD NO OR NAME		Solar PV	Solar PV		
LAYER TESTED / SAMPLED FROM		0.50-1.40mm	0.40-2.40mm		
DATE SAMPLED		04.02.2025	27.11.2024		
DATE RECEIVED		04.02.2025	27.11.2024		
CLIENTS MARKING		Solar PV	Solar PV		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		N/S Gravelly Sand	N/S Soft Rock Shale		
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100		
	75.0	100	100		
	63.0	100	100		
	50.0	100	100		
	37.5	100	99		
	28.0	100	92		
	20.0	100	82		
	14.0	100	82		
	5.0	100	72		
	2.00	98	46		
	0.425	96	22		
	0.075	80	8		
SANS 3001 - PR5					
Soil Mortar		98	46		
Coarse Sand		2.0	51.8		
Fine Sand		16	31		
Coarse Fine Sand		1	13		
Medium Fine Sand		6	10		
Fine Fine Sand		9	8		
Silt & Clay		82	17		
Coarse Sand Ratio		0.02	0.52		
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	52			
	P.I. (0.425mm)	26	NP		
	LS%	14			
	P.I. (0.075mm)	-	-		-
GM		0.25	2.23		
CLASSIFI - CATION	H.R.B.*	A-7-6(17)	A-1-a(0)		
	COLTO*	<G9	<G9		
	T.R.H. 14*	G9	<G10		
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	14.1	8.5		
	MDD(KG/M^3)	1725	1700		
C.B.R.	COMP MC	14.1	8.5		
	% SWELL	0.46	21.00		
C.B.R. (SANS GR40)	100%	32	20		
	98%	23	19		
	97%	20	17		
	95%	15	16		
	93%	11	14		
	90%	7	10		
MOD ITS : DRY (kPa) (GR54)		N/S	N/S		
PROCTOR ITS : DRY (kPa)		N/S	N/S		
STABILISED WITH	IN LAB	N/S	N/S		
	ON SITE	N/S	N/S		
TEST TYPE		CBR/IND	CBR/IND		
SAMPLED BY		Client	Client		
DELIVERED BY		Client	Client		
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**		
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S		
REMARKS & NOTES		N/S	N/S		

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

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060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15898	B15953	B15902	
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	
SIZE / WEIGHT OF SAMPLE		-+101kg	-+100,kg	-+96,kg	
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	
HOLE No. / Km. / CHAINAGE		PV5-TP 03	PV5-TP 09	PV5-TP 10	
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	
LAYER TESTED / SAMPLED FROM		0.60-3.10mm	0.00-0.40mm	0.30-0.70mm	
DATE SAMPLED		25.11.2024	02.12.2024	28.11.2024	
DATE RECEIVED		25.11.2024	02.12.2024	28.11.2024	
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Soft Rock Shale Sandy Gravel	N/S Clay Sand	Gravelly Sand Completely Weathered Dolerite	
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS (SANS GR1:2010)	100.0	100	100	100	
	75.0	100	100	100	
	63.0	100	100	100	
	50.0	100	100	100	
	37.5	95	100	96	
	28.0	90	100	93	
	20.0	75	100	92	
	14.0	73	100	92	
	5.0	46	100	90	
	2.00	32	97	50	
	0.425	17	81	13	
	0.075	7	35	6	
SANS 3001 - PR5					
Soil Mortar		32	97	50	
Coarse Sand		47.1	16.4	74	
Fine Sand		32	48	14	
Coarse Fine Sand		14	5	5	
Medium Fine Sand		9	17	5	
Fine Fine Sand		8	25	4	
Silt & Clay		21	36	12	
Coarse Sand Ratio		0.47	0.16	0.74	
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS (SANSGR10;GR11)	LL%		19	28	
	P.I. (0.425mm)	NP	3	3	
	LS%		1	2	
	P.I. (0.075mm)	-	-	-	-
GM		2.45	0.87	2.31	
CLASSIFI - CATION	H.R.B.*	A-1-a(0)	A-2-4(0)	A-2-4(0)	
	COLTO*	G8	G7	G7	
	T.R.H. 14*	G8	G7	G7	
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO (SANS GR30)	OMC%	8.8	9.5	7.4	
	MDD(KG/M^3)	2000	2250	2052	
C.B.R.	COMP MC	8.8	9.5	7.4	
	% SWELL	0.24	0.05	0.17	
C.B.R. (SANS GR40)	100%	23	51	42	
	98%	20	45	32	
	97%	19	43	28	
	95%	16	38	21	
	93%	14	34	16	
	90%	11	28	11	
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	
STABILISED WITH	IN LAB	N/S	N/S	N/S	
	ON SITE	N/S	N/S	N/S	
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	
SAMPLED BY		Client	Client	Client	
DELIVERED BY		Client	Client	Client	
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	
REMARKS & NOTES		N/S	N/S	N/S	

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

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Remarks :
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bloemfontein@roadlab.co.za
060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES						
SAMPLE No.		B15899	B15906			
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags			
SIZE / WEIGHT OF SAMPLE		-+101.8kg	-+103,kg			
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist			
HOLE No. / Km. / CHAINAGE		PV5-TP 04	PV5-TP 24			
ROAD NO OR NAME		Solar PV	Solar PV			
LAYER TESTED / SAMPLED FROM		0.00-0.60mm	060-1.30mm			
DATE SAMPLED		25.11.2024	04.02.2024			
DATE RECEIVED		25.11.2024	04.02.2024			
CLIENTS MARKING		Solar PV	Solar PV			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		Light Brown Silty Sand	Dark Brown Sand Gravel			
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)						
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100			
	75.0	100	100			
	63.0	100	100			
	50.0	100	98			
	37.5	100	95			
	28.0	100	92			
	20.0	100	90			
	14.0	100	90			
	5.0	100	79			
	2.00	99	67			
	0.425	93	53			
	0.075	22	25			
SANS 3001 - PR5						
Soil Mortar		99	67			
Coarse Sand		6.1	21.0			
Fine Sand		72	42			
Coarse Fine Sand		9	10			
Medium Fine Sand		28	14			
Fine Fine Sand		34	18			
Silt & Clay		22	37			
Coarse Sand Ratio		0.06	0.21			
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)						
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	26	28			
	P.I. (0.425mm)	8	9			
	LS%	4	4			
	P.I. (0.075mm)	-	-			-
GM		0.86	1.55			
CLASSIFI - CATION	H.R.B.*	A-2-4(0)	A-2-4(0)			
	COLTO*	G9	G7			
	T.R.H. 14*	G9	G7			
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)						
MOD AASHTO **(SANS GR30)**	OMC%	6.8	6.7			
	MDD(KG/M^3)	1854	2018			
C.B.R.	COMP MC	6.8	6.7			
	% SWELL	0.30	0.24			
C.B.R. (SANS GR40)	100%	21	39			
	98%	17	33			
	97%	15	27			
	95%	12	24			
	93%	9	19			
	90%	7	11			
MOD ITS : DRY (kPa) (GR54)		N/S	N/S			
PROCTOR ITS : DRY (kPa)		N/S	N/S			
STABILISED WITH	IN LAB	N/S	N/S			
	ON SITE	N/S	N/S			
TEST TYPE		CBR/IND	CBR/IND			
SAMPLED BY		Client	Client			
DELIVERED BY		Client	Client			
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**			
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S			
REMARKS & NOTES		N/S	N/S			

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
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bloemfontein@roadlab.co.za
060 727 8002

RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15903	B15905	B15907	
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	
SIZE / WEIGHT OF SAMPLE		-+97kg	-+102.1,kg	-+99,kg	
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	
HOLE No. / Km. / CHAINAGE		PV5-TP 11	PV5-TP 23	PV5-TP 28	
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	
LAYER TESTED / SAMPLED FROM		0.00-0.40mm	0.30-0.80mm	0.60-2.10mm	
DATE SAMPLED		04-02.2025	04.02.2025	28.11.2024	
DATE RECEIVED		04.02.2025	04.02.2025	28.11.2024	
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		N/S Silty Sand	Dark Brown Sandy Gravel	Residual Shale Sandy Gravel	
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100	100	
	75.0	100	100	100	
	63.0	100	97	100	
	50.0	100	91	100	
	37.5	100	88	100	
	28.0	100	85	100	
	20.0	100	83	100	
	14.0	100	83	100	
	5.0	100	81	100	
	2.00	93	54	93	
	0.425	74	14	57	
	0.075	38	5	48	
SANS 3001 - PR5					
Soil Mortar		93	54	93	
Coarse Sand		20.7	73.7	38	
Fine Sand		39	18	10	
Coarse Fine Sand		6	8	3	
Medium Fine Sand		14	5	4	
Fine Fine Sand		19	4	4	
Silt & Clay		41	9	51	
Coarse Sand Ratio		0.21	0.74	0.38	
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	20		46	
	P.I. (0.425mm)	3	NP	16	
	LS%	1		8	
	P.I. (0.075mm)	-	-	-	-
GM		0.95	2.27	1.02	
CLASSIFI - CATION	H.R.B.*	A-4(1)	A-1-b(0)	A-1-b(0)	
	COLTO*	G8	G7	<G9	
	T.R.H. 14*	G8	G8	G8	
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	5.9	7.6	12.0	
	MDD(KG/M^3)	2091	2074	1870	
C.B.R.	COMP MC	5.9	7.7	12.0	
	% SWELL	0.27	1.20	0.32	
C.B.R. (SANS GR40)	100%	34	49	22	
	98%	27	42	20	
	97%	23	33	19	
	95%	18	27	18	
	93%	14	16	17	
	90%	10	10	15	
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	
STABILISED WITH	IN LAB	N/S	N/S	N/S	
	ON SITE	N/S	N/S	N/S	
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	
SAMPLED BY		Client	Client	Client	
DELIVERED BY		Client	Client	Client	
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	
REMARKS & NOTES		N/S	N/S	N/S	

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
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RB7627

Date Reported: 18.03.2025

Smec South Africa (Pty)Lyd
23 Second Ave
Westdene
Bloemfontein

Attention: Mr.Ayanda Nxumalo

Dear Sir

Test Report: **Notsi Solar PV**

Please find the attached test results for the sample/s as submitted to and tested by Roadlab (Pty)Ltd
The unambiguous description of the sample/s as received are as follows :

SAMPLE INFORMATION & PROPERTIES					
SAMPLE No.		B15928	B15926	B15908	
CONTAINER USED FOR SAMPLING		Sampling Bags	Sampling Bags	Sampling Bags	
SIZE / WEIGHT OF SAMPLE		-+99kg	-+101.3,kg	-+96,kg	
MOISTURE CONDITION OF SAMPLE ON ARRIVAL		Slightly Moist	Slightly Moist	Slightly Moist	
HOLE No. / Km. / CHAINAGE		PV5-TP 32	PV5-TP 33	PV5-TP 37	
ROAD NO OR NAME		Solar PV	Solar PV	Solar PV	
LAYER TESTED / SAMPLED FROM		0.10-0.40mm	0.00-0.30mm	0.40-0.70mm	
DATE SAMPLED		27.11.2024	22.11.2024	25.11.2024	
DATE RECEIVED		27.11.2024	22.11.2024	25.11.2024	
CLIENTS MARKING		Solar PV	Solar PV	Solar PV	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)		N/S Hard Rock Dolerite	Light Brown Calcrete Shale	N/S Clayey Gravel Residual Shale	
GRADING ANALYSIS - % PASSING SIEVES (SANS 3001-GR1:2010;SANS 3001-GR2:2010)					
SIEVE ANALYSIS **(SANS GR1:2010)**	100.0	100	100	100	
	75.0	100	100	100	
	63.0	95	100	100	
	50.0	91	98	100	
	37.5	72	97	98	
	28.0	59	89	94	
	20.0	49	80	83	
	14.0	47	80	83	
	5.0	34	77	61	
	2.00	28	65	32	
	0.425	24	43	17	
	0.075	12	21	12	
SANS 3001 - PR5					
Soil Mortar		28	65	32	
Coarse Sand		13.3	34.2	48	
Fine Sand		43	33	16	
Coarse Fine Sand		4	13	8	
Medium Fine Sand		14	10	5	
Fine Fine Sand		25	11	3	
Silt & Clay		44	32	36	
Coarse Sand Ratio		0.13	0.34	0.48	
ATTERBERG LIMITS ANALYSIS (SANS 3001-GR10:2010;SANS 3001-GR11:2010)					
ATTERBERG LIMITS **(SANSGR10;GR11)**	LL%	24	40	41	
	P.I. (0.425mm)	7	17	17	
	LS%	3	9	9	
	P.I. (0.075mm)	-	-	-	-
GM		2.35	1.72	2.39	
CLASSIFI - CATION	H.R.B.*	A-2-4(0)	A-2-6(0)	A-2-6(0)	
	COLTO*	G5	<G9	G8	
	T.R.H. 14*	G8	G10	G9	
CALIFORNIA BEARING RATIO (SANS 3001-GR30:2010;SANS 3001-GR40:2010)					
MOD AASHTO **(SANS GR30)**	OMC%	5.8	14.0	7.9	
	MDD(KG/M^3)	2263	1668	1862	
C.B.R.	COMP MC	5.8	13.8	7.9	
	% SWELL	0.02	1.10	0.36	
C.B.R. (SANS GR40)	100%	57	17	22	
	98%	54	13	17	
	97%	53	11	15	
	95%	50	9	12	
	93%	47	7	10	
	90%	44	3	7	
MOD ITS : DRY (kPa) (GR54)		N/S	N/S	N/S	
PROCTOR ITS : DRY (kPa)		N/S	N/S	N/S	
STABILISED WITH	IN LAB	N/S	N/S	N/S	
	ON SITE	N/S	N/S	N/S	
TEST TYPE		CBR/IND	CBR/IND	CBR/IND	
SAMPLED BY		Client	Client	Client	
DELIVERED BY		Client	Client	Client	
SAMPLING METHOD		**Sampled by the Client**	**Sampled by the Client**	**Sampled by the Client**	
ENVIRONMENTAL CONDITION WHEN SAMPLED		N/S	N/S	N/S	
REMARKS & NOTES		N/S	N/S	N/S	

Kind Regards

Mr. Solomon Lediga
Technical Signatory / Manager

sanas T1143

Remarks :
*Opinions & Interpretations are not included in our schedule of Accreditation
The samples were subjected to analysis according to SANS T1143
The results reported relate only to the sample tested
Further use of the above information is not the responsibility or liability of Roadlab
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Compiled By : M Tau

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP9
LAYER : 0.00-0.40mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Sand

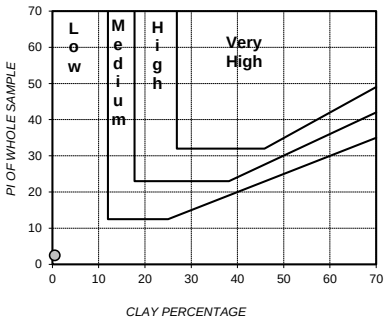
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**2.4**	**Specifc Gravity**	**2.35**

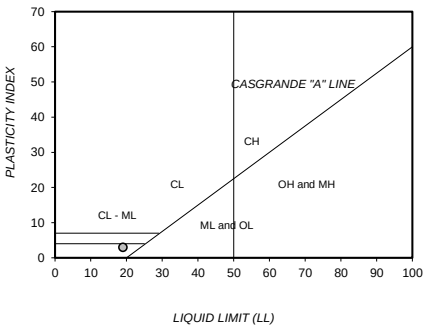
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	97
0.425	81
0.250	76
0.150	59
0.075	35
50 µm	3
5 µm	2
2 µm	0.5

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	16
0.425 - 0.250	5
0.250 - 0.150	17
0.150 - 0.075	25
< 0.075	36

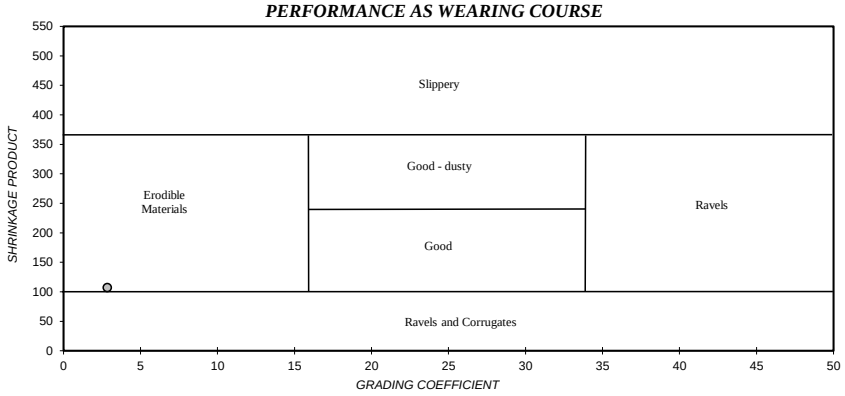
Effective size	0.056
Uniformity Coefficient	2.8
Curvature Coefficient	0.6
Oversize Index	0.0
Shrinkage Product	107.2
Grading Coefficient	2.8
Grading modulus	0.87

Atter-berg Limits

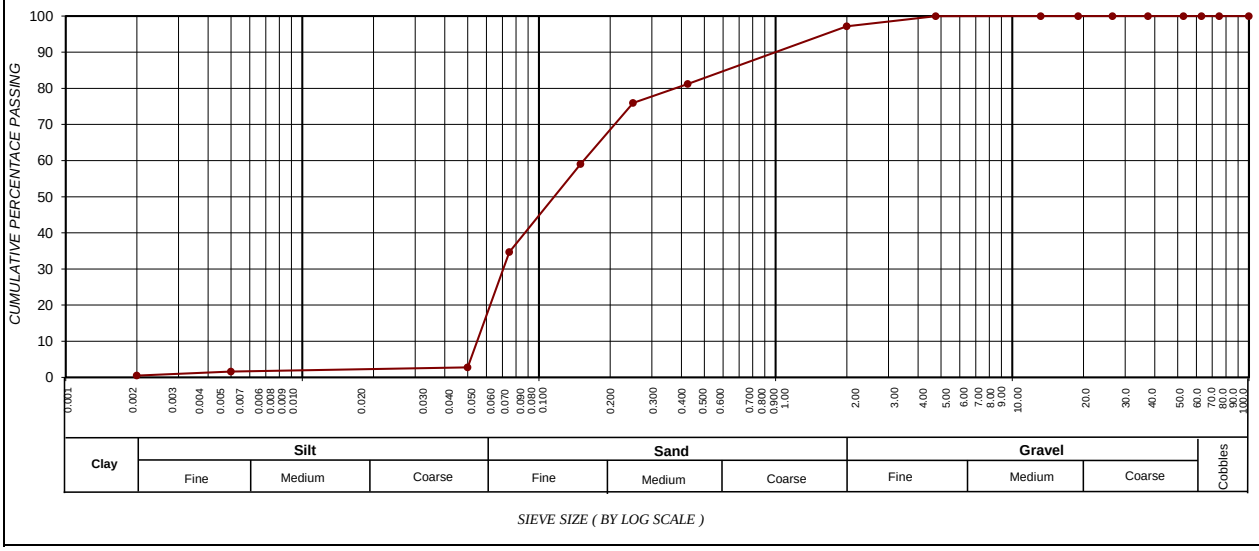
Liquid Limit	19
Plasticity Index	3
Linear Shrinkage	1.3
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-2-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.5	8.6	88.1	2.8

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP37
LAYER : 0.4-0.70mm
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Residual Shale + Sandy Gravel

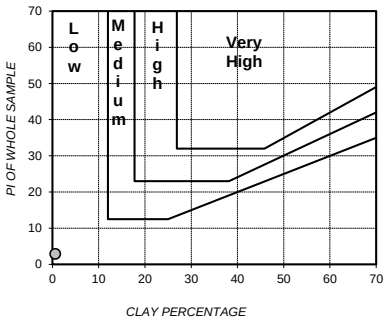
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	2.9	Specifc Gravity	2.35

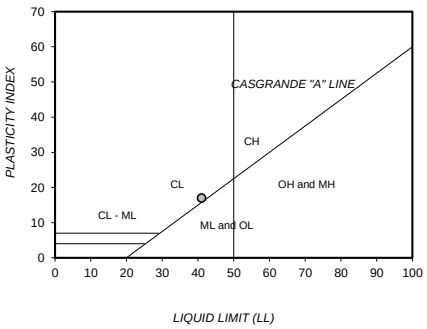
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	98
28.0	94
20.0	83
14.0	83
5.00	61
2.000	32
0.425	17
0.250	15
0.150	13
0.075	12
50 µm	2
5 µm	1
2 µm	0.6

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	48
0.425 - 0.250	8
0.250 - 0.150	5
0.150 - 0.075	3
< 0.075	36

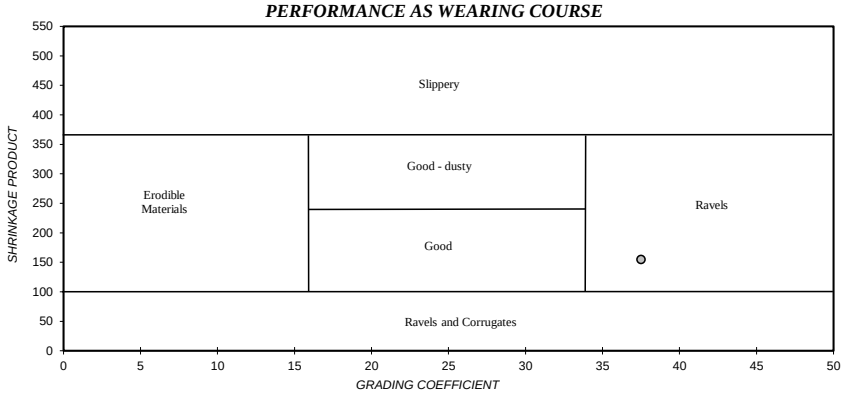
Effective size	0.071
Uniformity Coefficient	69.4
Curvature Coefficient	8.8
Oversize Index	1.8
Shrinkage Product	154.6
Grading Coefficient	37.5
Grading modulus	2.39

Atter-berg Limits

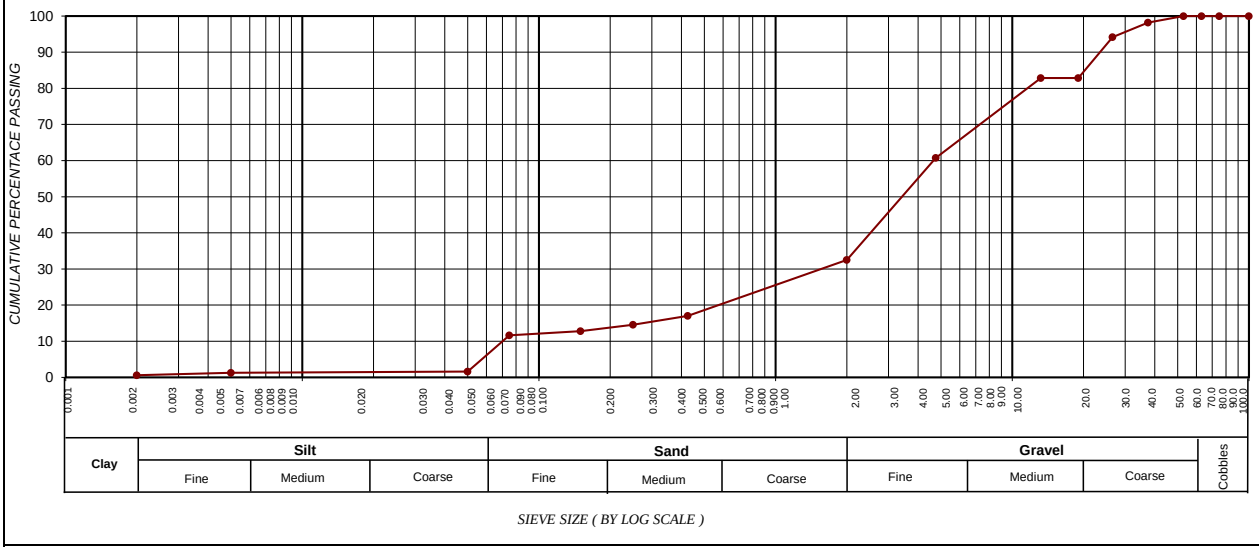
Liquid Limit	41
Plasticity Index	17
Linear Shrinkage	9.1
PI < 0.075	-

Unified Soil Classification	SC
U.S. Highway Classification	A-2-7 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.6	3.5	28.4	67.5

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 1
LAYER : 0.50-1.10mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Clayey Sand -Aeolian Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	4.7	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	96
0.425	79
0.250	73
0.150	56
0.075	24
50 µm	3
5 µm	2
2 µm	0.8

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	17
0.425 - 0.250	7
0.250 - 0.150	18
0.150 - 0.075	33
< 0.075	25

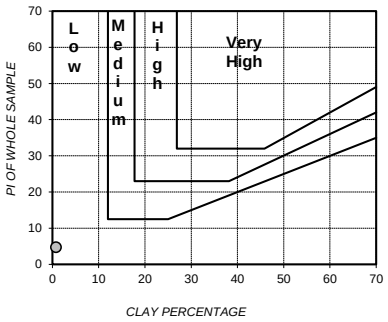
Effective size	0.059
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	236.7
Grading Coefficient	4.4
Grading modulus	1.02

Atter-berg Limits

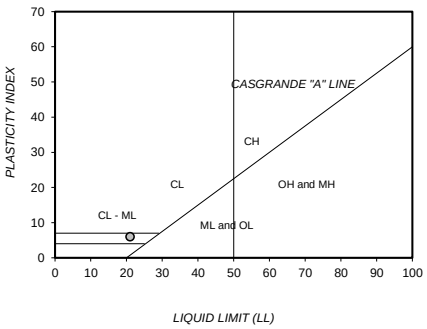
Liquid Limit	21
Plasticity Index	6
Linear Shrinkage	3.0
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

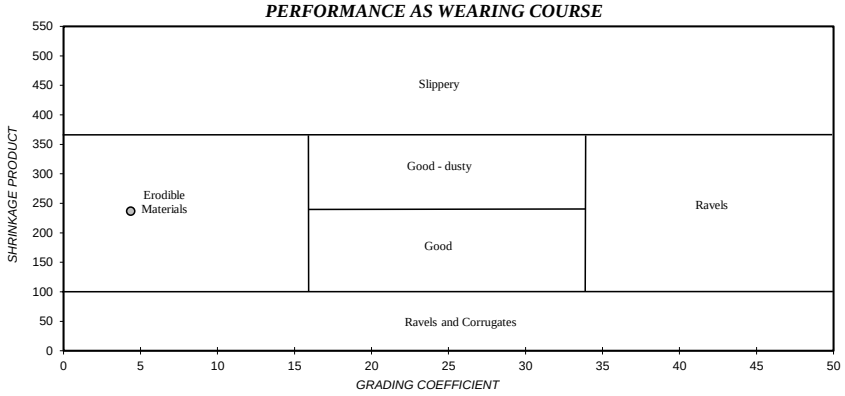
POTENTIAL EXPANSIVENES



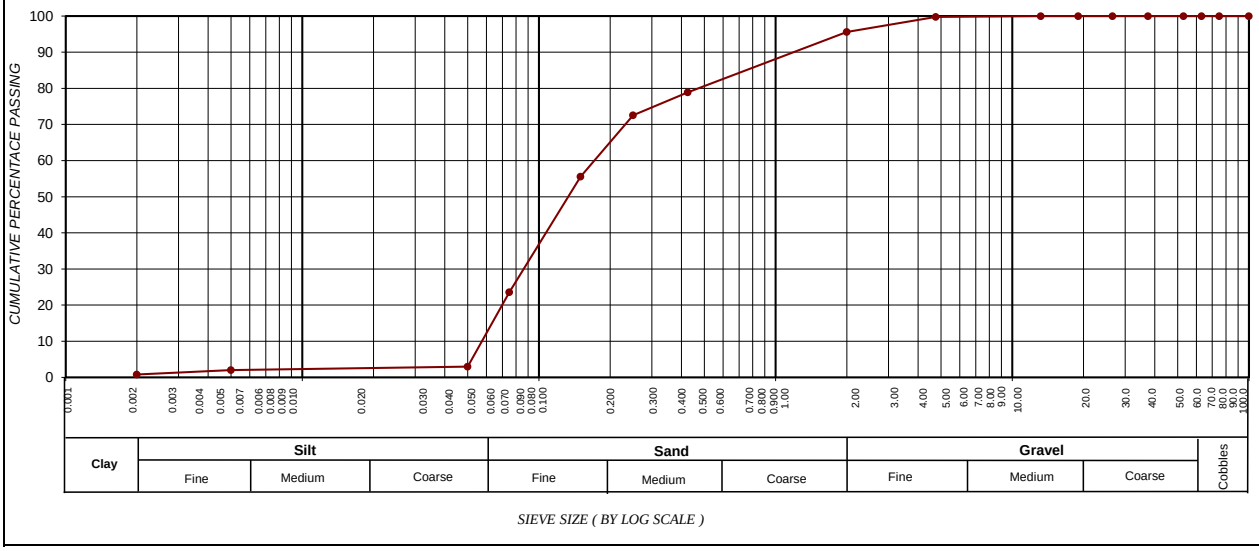
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.8	4.9	89.9	4.4

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 02.12.2024
POSITION : TP02
LAYER : 0.9-2.40mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Sandy Clay

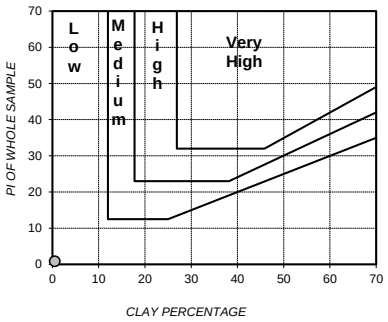
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**0.9**	**Specifc Gravity**	**2.35**

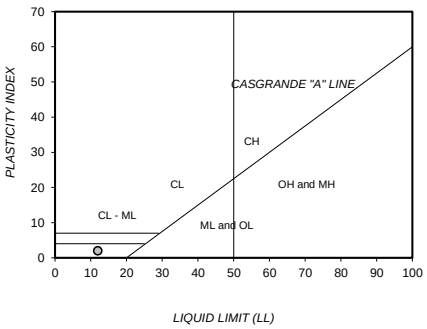
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	92
0.425	43
0.250	29
0.150	20
0.075	14
50 µm	1
5 µm	1
2 µm	0.5

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	53
0.425 - 0.250	15
0.250 - 0.150	10
0.150 - 0.075	7
< 0.075	15

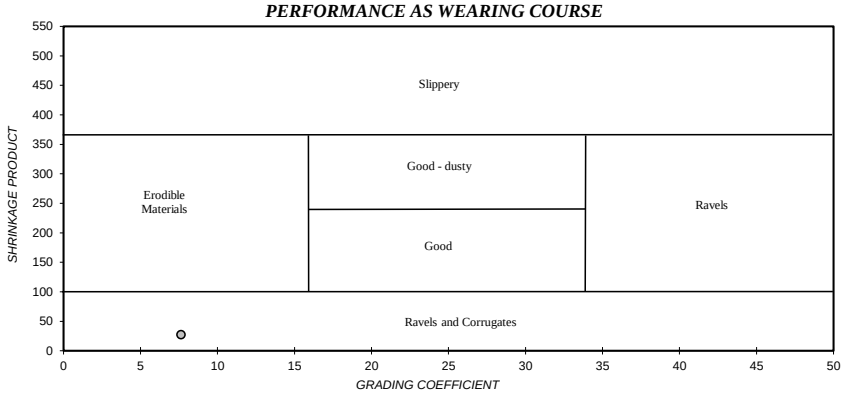
Effective size	0.067
Uniformity Coefficient	14.3
Curvature Coefficient	1.0
Oversize Index	0.0
Shrinkage Product	27.2
Grading Coefficient	7.6
Grading modulus	1.51

Atter-berg Limits

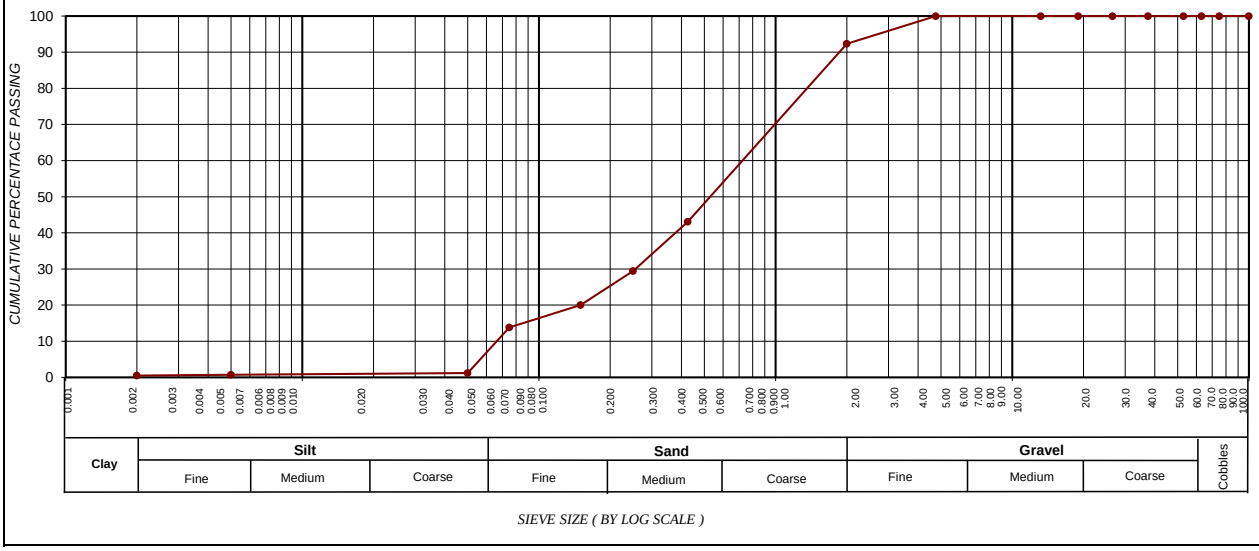
Liquid Limit	12
Plasticity Index	2
Linear Shrinkage	0.6
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.5	3.6	88.2	7.6

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 03.12.2024
POSITION : TP 2
LAYER : 0,40-1,30mm
SAMPLE No. : PV1
SAMPLE DESCRIPTION : Sandy Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	#VALUE!	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	97
37.5	94
28.0	94
20.0	93
14.0	93
5.00	81
2.000	55
0.425	20
0.250	14
0.150	10
0.075	7
50 µm	1
5 µm	0
2 µm	0.2

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	64
0.425 - 0.250	10
0.250 - 0.150	7
0.150 - 0.075	6
< 0.075	12

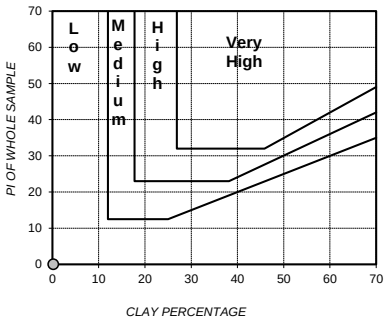
Effective size	0.147
Uniformity Coefficient	17.1
Curvature Coefficient	2.0
Oversize Index	5.8
Shrinkage Product	0.0
Grading Coefficient	31.1
Grading modulus	2.18

Atter-berg Limits

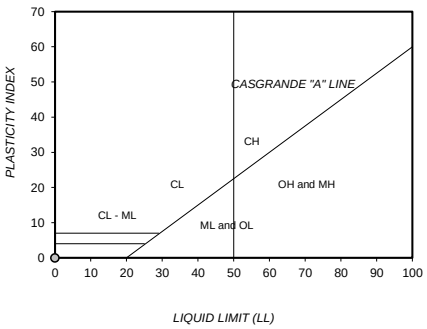
Liquid Limit	0
Plasticity Index	
Linear Shrinkage	0.0
PI < 0.075	-

Unified Soil Classification	SP
U.S. Highway Classification	#VALUE!

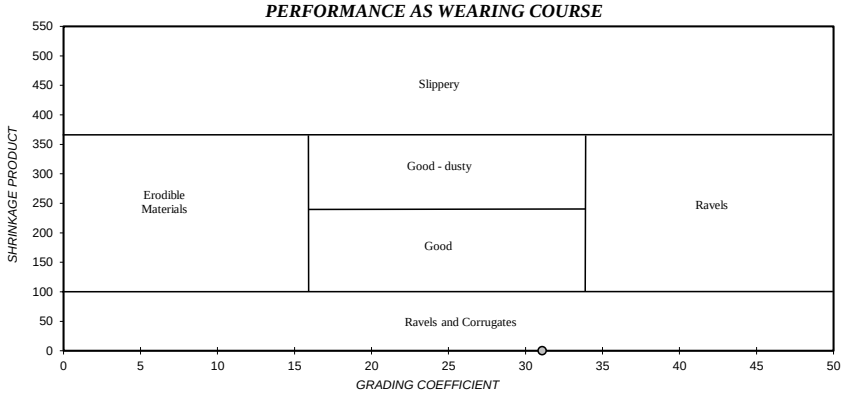
POTENTIAL EXPANSIVENES



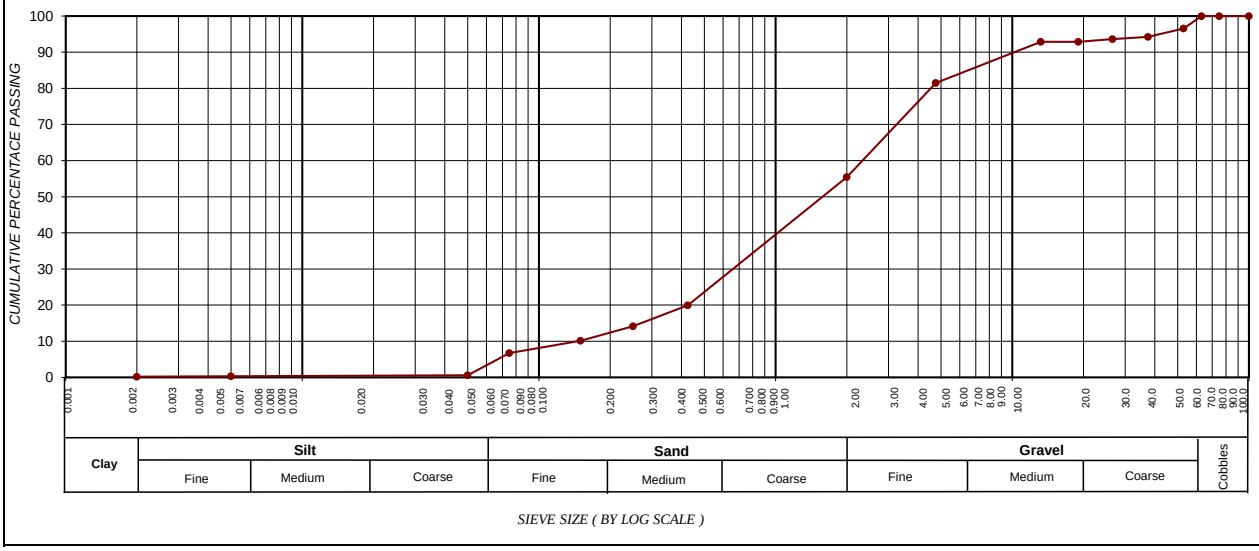
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.2	1.8	53.4	44.5

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 04.12.2024
POSITION : TP 2
LAYER : 1,40-3,10mm
SAMPLE No. : PV2
SAMPLE DESCRIPTION : Gravelly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	13.5	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	96
2.000	93
0.425	90
0.250	89
0.150	85
0.075	79
50 µm	8
5 µm	6
2 µm	3.0

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	3
0.425 - 0.250	2
0.250 - 0.150	4
0.150 - 0.075	6
< 0.075	84

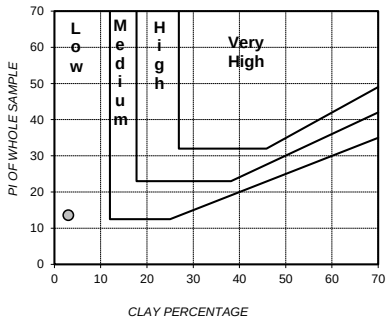
Effective size	0.051
Uniformity Coefficient	1.3
Curvature Coefficient	1.0
Oversize Index	0.0
Shrinkage Product	722.5
Grading Coefficient	6.4
Grading modulus	0.37

Atter-berg Limits

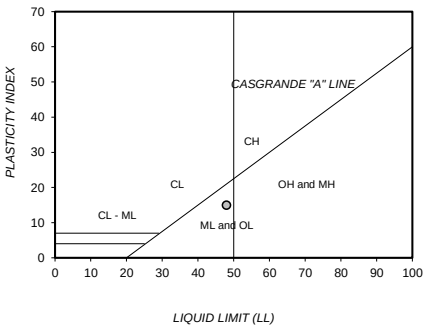
Liquid Limit	48
Plasticity Index	15
Linear Shrinkage	8.0
PI < 0.075	-

Unified Soil Classification	ML
U.S. Highway Classification	A-7-5 (14)

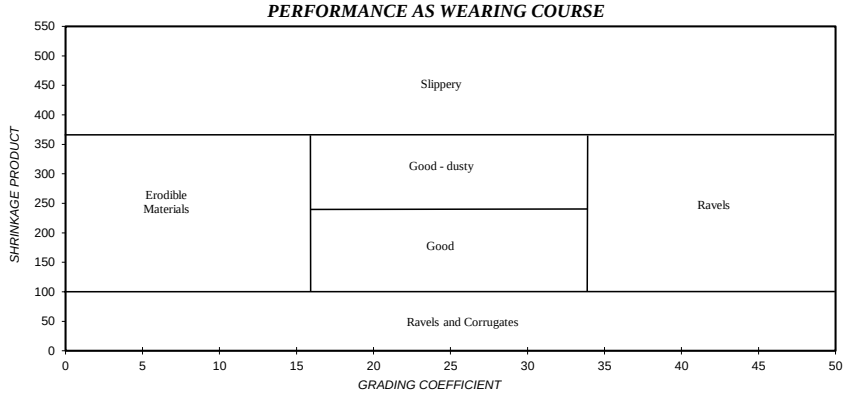
POTENTIAL EXPANSIVENES



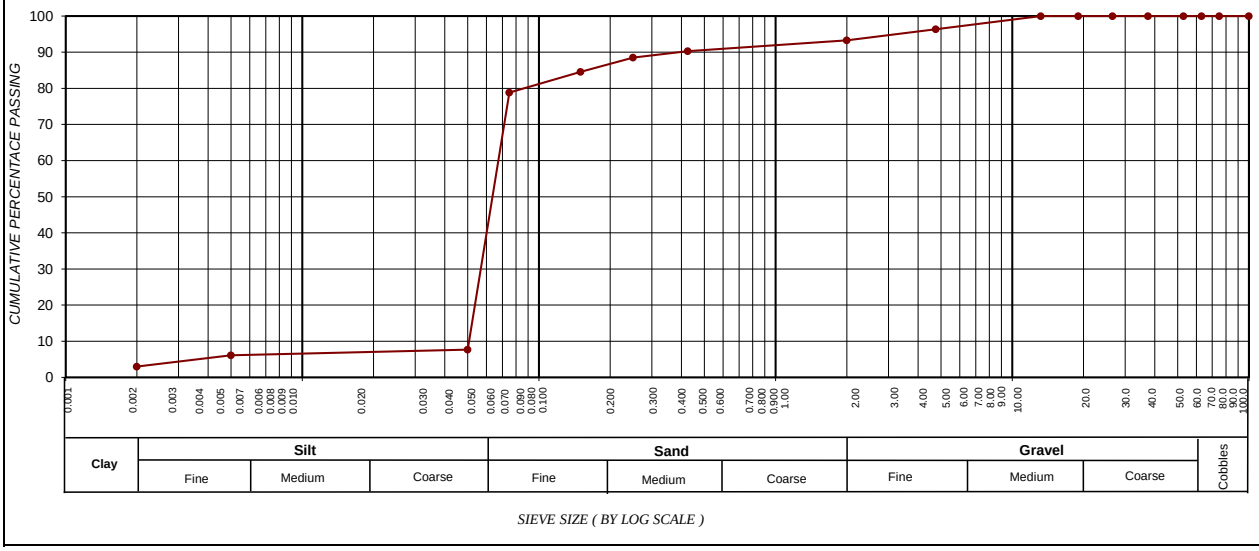
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
3.0	23.1	67.2	6.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 03.12.2024
POSITION : PV1-TP 2
LAYER : 0,40-1,30
SAMPLE No. : B15883
SAMPLE DESCRIPTION : Sandy Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)	
100.0	100
75.0	100
63.0	100
50.0	97
37.5	94
28.0	94
20.0	93
14.0	93
5.00	81
2.000	55
0.425	20
0.250	14
0.150	10
0.075	7
50 µm	1
5 µm	0
2 µm	0.2

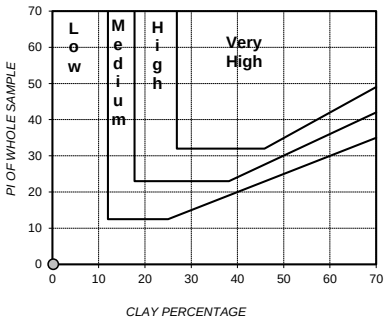
Soil Mortar Analysis % < 2.00mm	
2.000 - 0.425	64
0.425 - 0.250	10
0.250 - 0.150	7
0.150 - 0.075	6
< 0.075	12

Effective size	0.147
Uniformity Coefficient	17.1
Curvature Coefficient	2.0
Oversize Index	5.8
Shrinkage Product	0
Grading Coefficient	31.1
Grading modulus	2.18

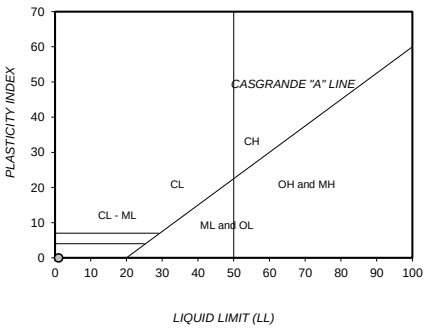
Atter-berg Limits	
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

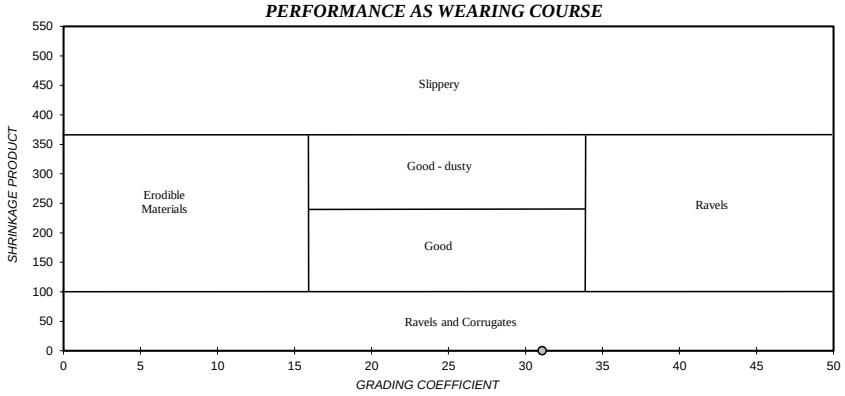
POTENTIAL EXPANSIVENES



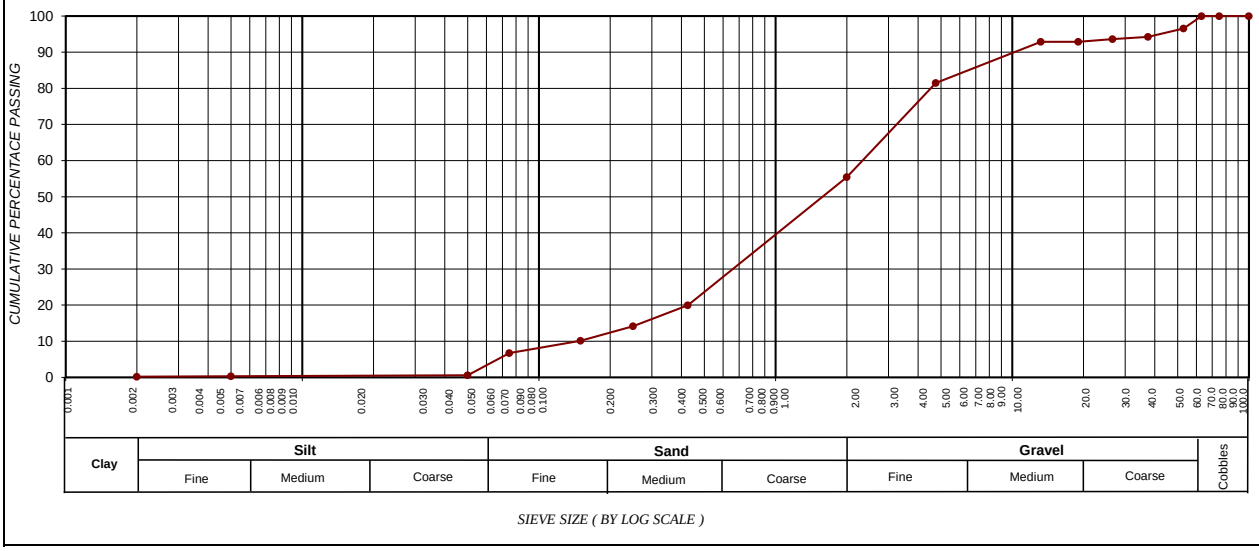
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.2	1.8	53.4	44.5

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 02.12.2024
POSITION : TP2
LAYER : 0,40-1,20mm
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Sandy Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	#VALUE!	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	93
2.000	64
0.425	15
0.250	10
0.150	7
0.075	5
50 µm	0
5 µm	0
2 µm	0.2

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	77
0.425 - 0.250	7
0.250 - 0.150	5
0.150 - 0.075	3
< 0.075	7

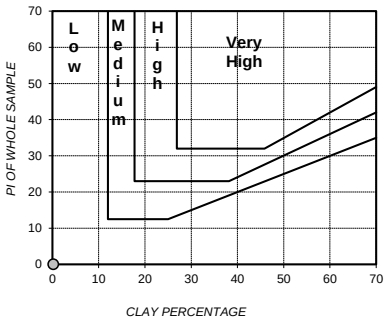
Effective size	0.248
Uniformity Coefficient	7.6
Curvature Coefficient	1.8
Oversize Index	0.0
Shrinkage Product	0.0
Grading Coefficient	33.6
Grading modulus	2.16

Atter-berg Limits

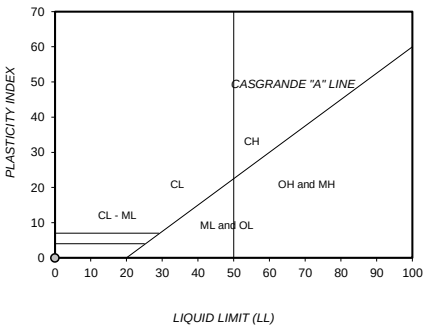
Liquid Limit	0
Plasticity Index	
Linear Shrinkage	0.0
PI < 0.075	-

Unified Soil Classification	SP
U.S. Highway Classification	#VALUE!

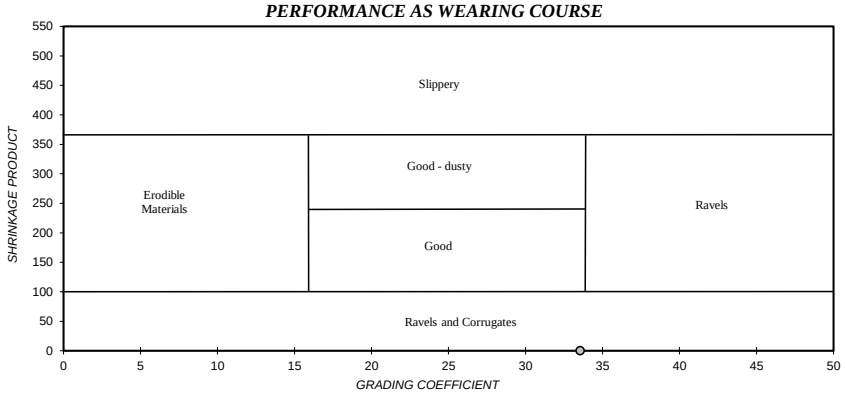
POTENTIAL EXPANSIVENES



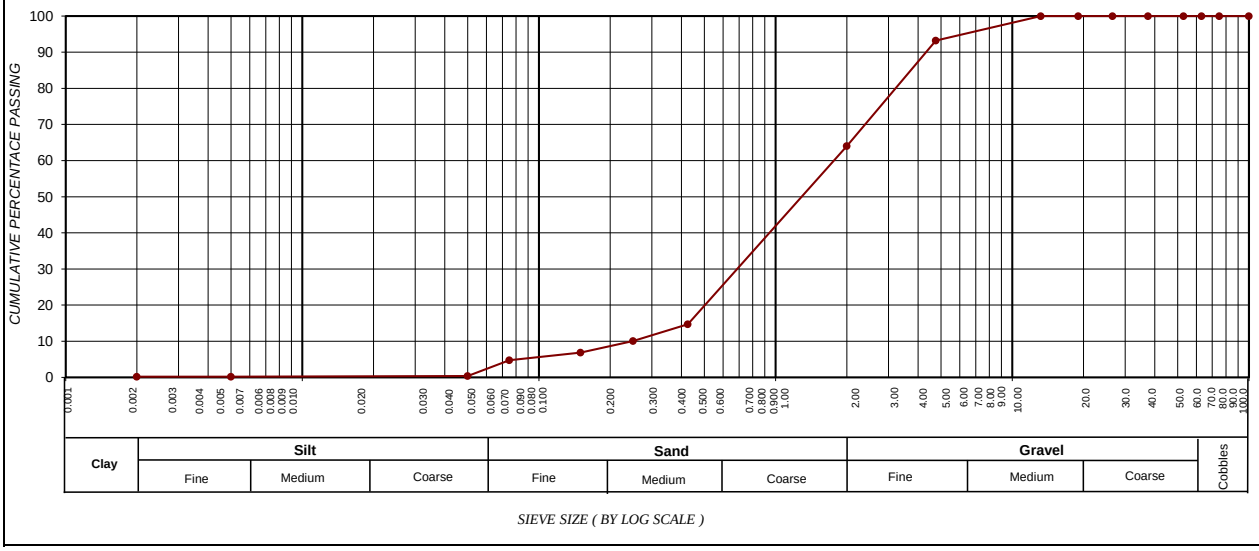
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.2	1.3	62.5	36.0

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 3
LAYER : 2.40-3.10mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Sandy Gravel

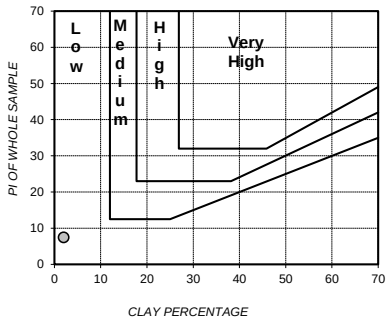
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**7.4**	**Specifc Gravity**	**2.35**

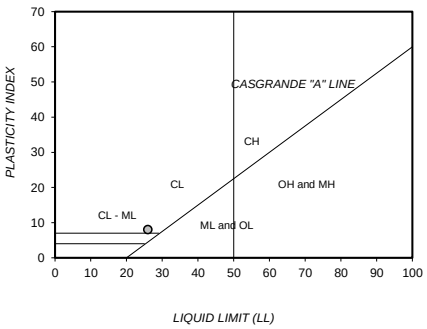
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	99
0.425	93
0.250	85
0.150	76
0.075	49
50 µm	5
5 µm	4
2 µm	2.0

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	6
0.425 - 0.250	8
0.250 - 0.150	9
0.150 - 0.075	28
< 0.075	49

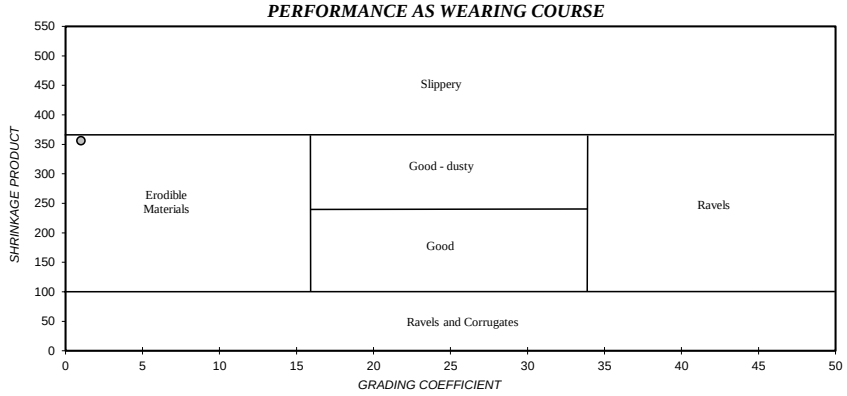
Effective size	0.053
Uniformity Coefficient	2.0
Curvature Coefficient	0.7
Oversize Index	0.0
Shrinkage Product	355.9
Grading Coefficient	1.0
Grading modulus	0.59

Atter-berg Limits

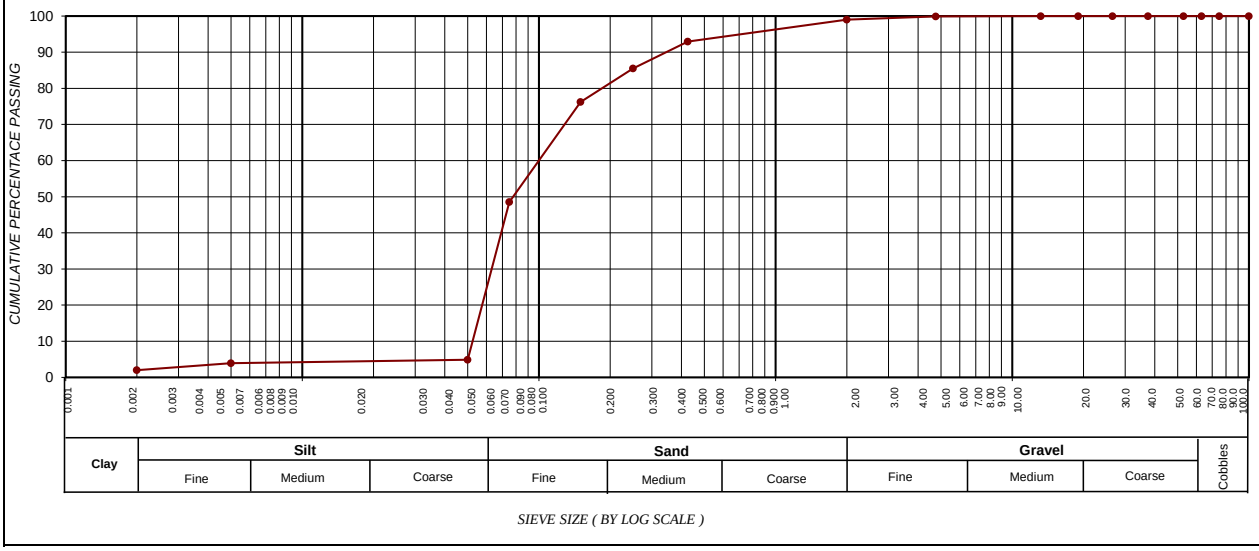
Liquid Limit	26
Plasticity Index	8
Linear Shrinkage	3.8
PI < 0.075	-

Unified Soil Classification	SC
U.S. Highway Classification	A-4 (1)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
2.0	11.8	85.2	1.0

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 3
LAYER : 0.40-0.60mm
SAMPLE No. : PV4
SAMPLE DESCRIPTION : Clayey Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	4.1	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	99
5.00	97
2.000	94
0.425	83
0.250	75
0.150	56
0.075	24
50 µm	5
5 µm	3
2 µm	1.4

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	12
0.425 - 0.250	8
0.250 - 0.150	20
0.150 - 0.075	34
< 0.075	25

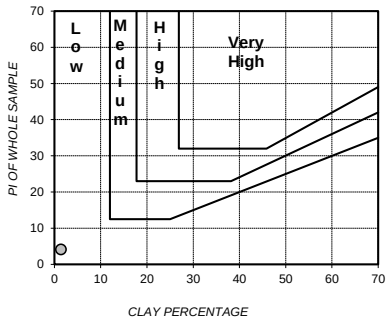
Effective size	0.057
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	212.1
Grading Coefficient	5.7
Grading modulus	0.99

Atter-berg Limits

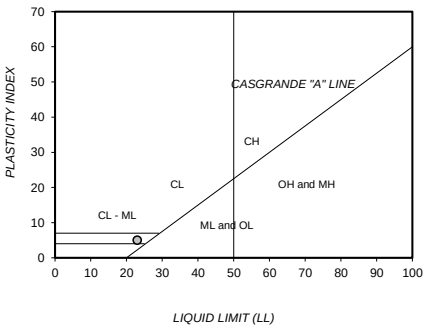
Liquid Limit	23
Plasticity Index	5
Linear Shrinkage	2.6
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

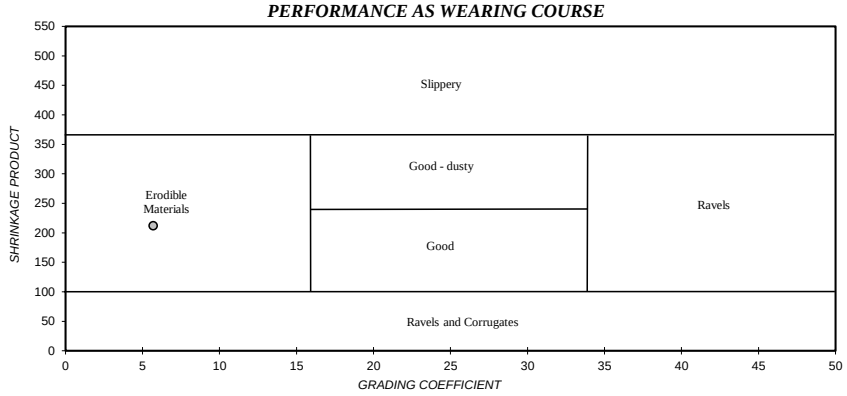
POTENTIAL EXPANSIVENES



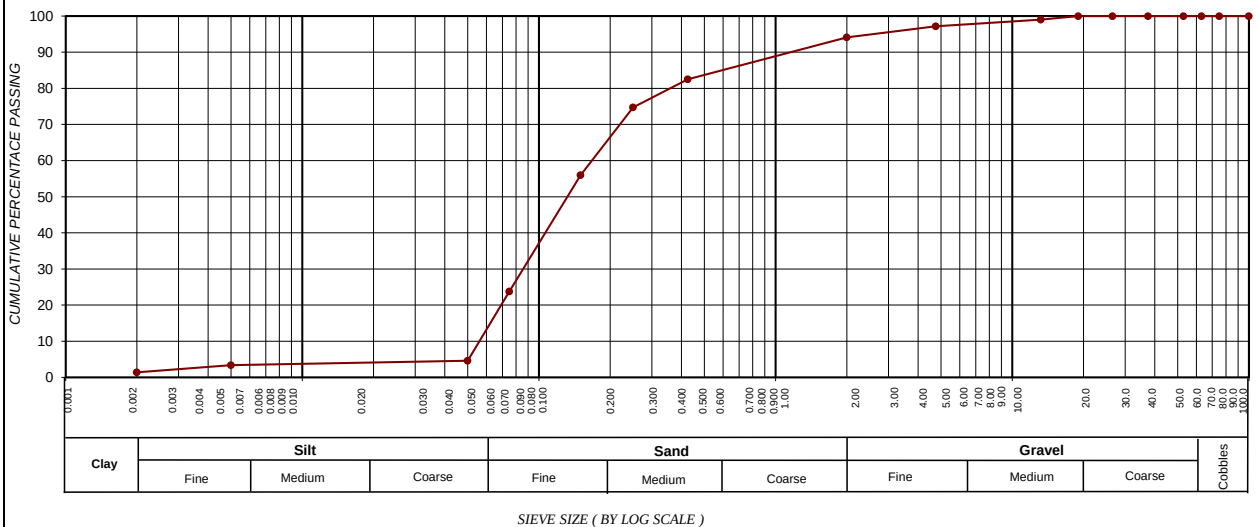
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.4	5.9	86.8	5.9

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 3
LAYER : 1.20-1.40mm
SAMPLE No. : PV4
SAMPLE DESCRIPTION : Sandy Clay

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	13.5	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	96
2.000	93
0.425	90
0.250	89
0.150	85
0.075	79
50 µm	8
5 µm	6
2 µm	2.9

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	3
0.425 - 0.250	2
0.250 - 0.150	4
0.150 - 0.075	6
< 0.075	84

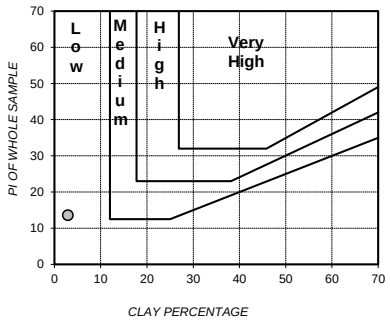
Effective size	0.051
Uniformity Coefficient	1.3
Curvature Coefficient	1.0
Oversize Index	0.0
Shrinkage Product	733.4
Grading Coefficient	6.4
Grading modulus	0.37

Atter-berg Limits

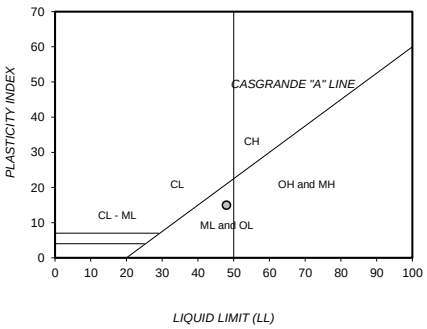
Liquid Limit	48
Plasticity Index	15
Linear Shrinkage	8.1
PI < 0.075	-

Unified Soil Classification	ML
U.S. Highway Classification	A-7-5 (14)

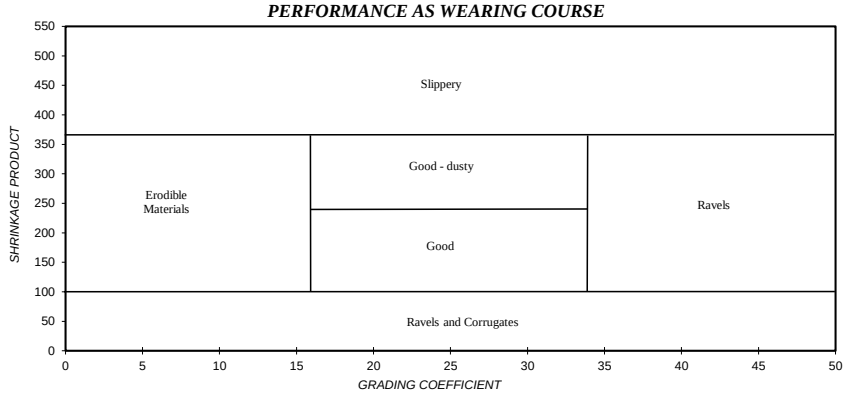
POTENTIAL EXPANSIVENES



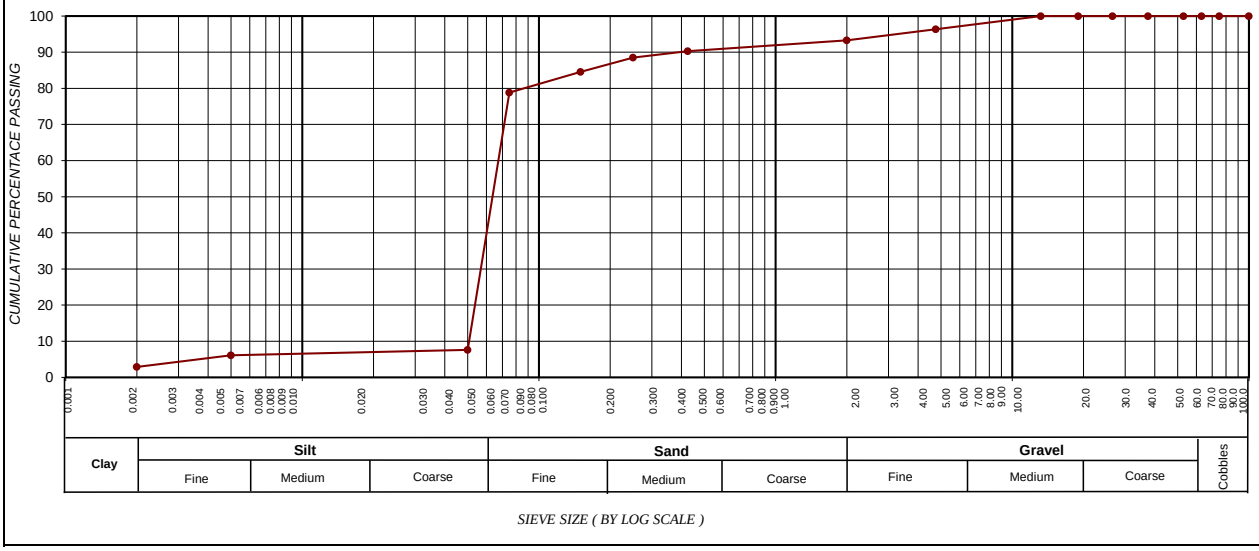
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
2.9	22.3	68.2	6.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 3
LAYER : 0,60-3,10mm
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Gravelly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	#VALUE!	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	95
28.0	90
20.0	75
14.0	73
5.00	46
2.000	32
0.425	17
0.250	12
0.150	9
0.075	7
50 µm	1
5 µm	0
2 µm	0.1

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	47
0.425 - 0.250	14
0.250 - 0.150	9
0.150 - 0.075	8
< 0.075	21

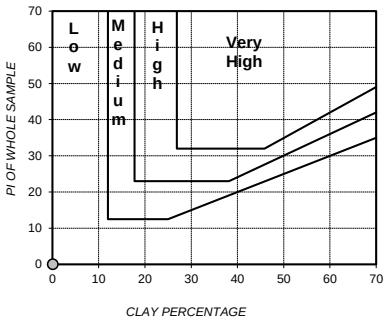
Effective size	0.172
Uniformity Coefficient	56.4
Curvature Coefficient	2.0
Oversize Index	5.1
Shrinkage Product	0.0
Grading Coefficient	26.7
Grading modulus	2.44

Atter-berg Limits

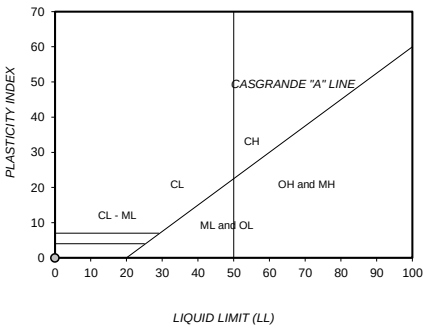
Liquid Limit	0
Plasticity Index	
Linear Shrinkage	0.0
PI < 0.075	-

Unified Soil Classification	GP
U.S. Highway Classification	#VALUE!

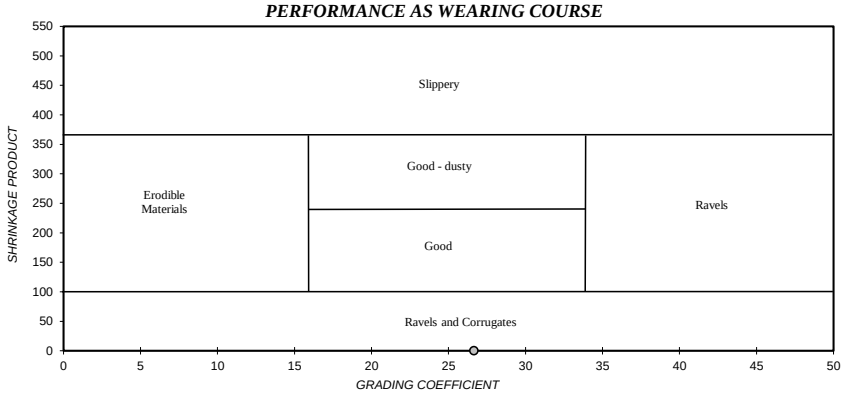
POTENTIAL EXPANSIVENES



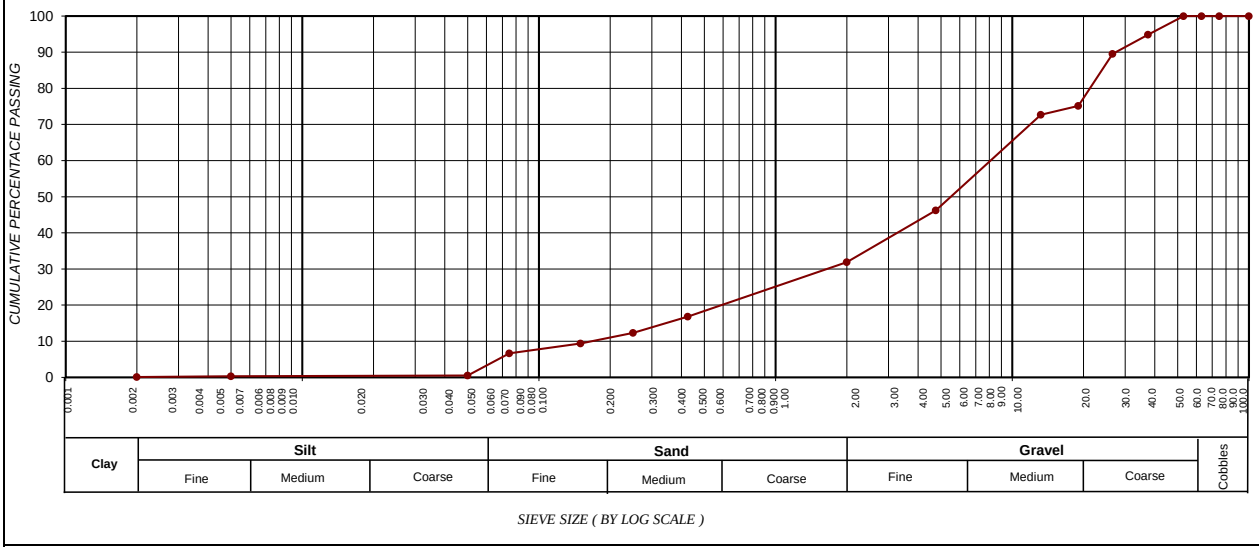
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.1	1.9	29.9	68.1

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 5
LAYER : 1.30-1.50mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Sandy Silty Clay

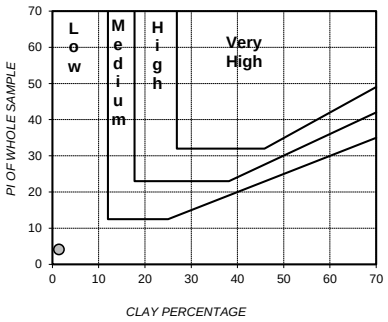
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**4.1**	**Specifc Gravity**	**2.35**

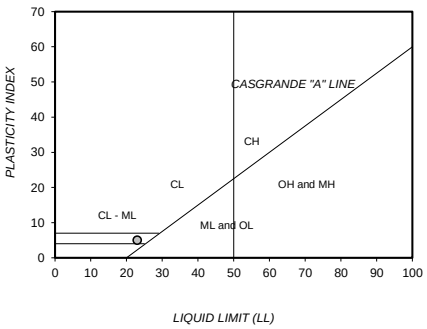
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	99
5.00	97
2.000	94
0.425	82
0.250	75
0.150	56
0.075	24
50 µm	5
5 µm	3
2 µm	1.4

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	12
0.425 - 0.250	8
0.250 - 0.150	20
0.150 - 0.075	34
< 0.075	25

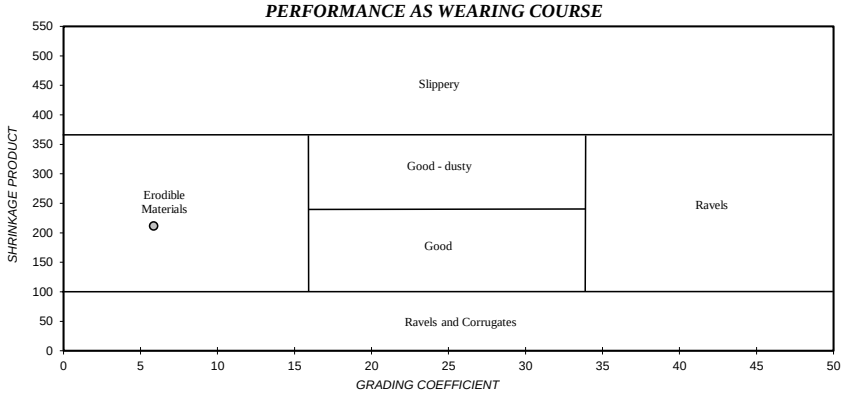
Effective size	0.057
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	211.7
Grading Coefficient	5.9
Grading modulus	1.00

Atter-berg Limits

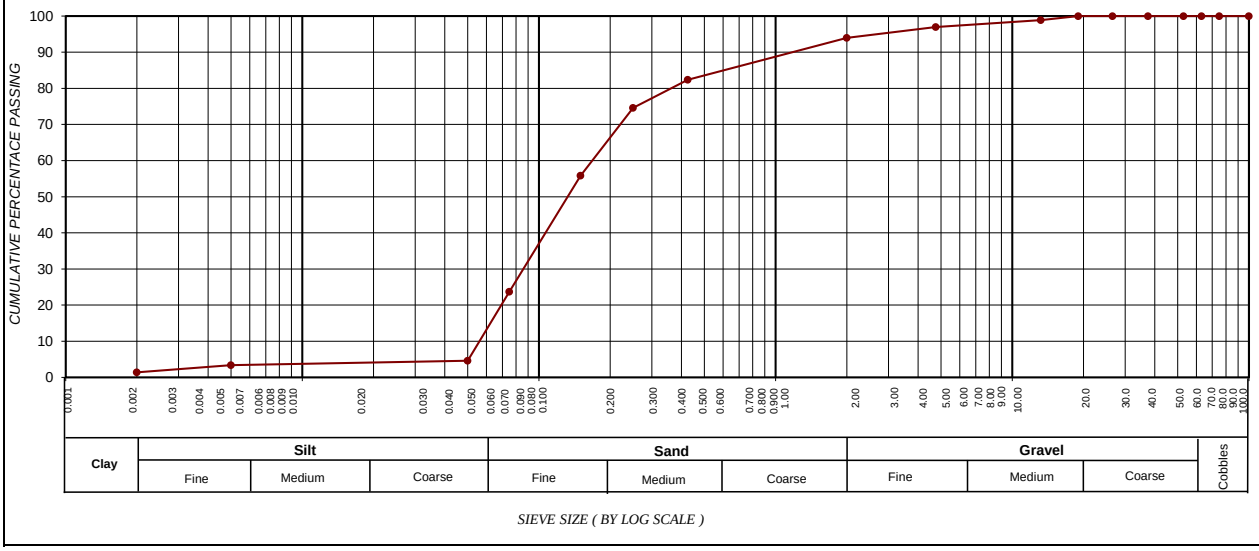
Liquid Limit	23
Plasticity Index	5
Linear Shrinkage	2.6
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.4	5.9	86.6	6.0

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : PV 2
LAYER : 0.60-1.70mm
SAMPLE No. : TP5
SAMPLE DESCRIPTION : Sandy Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	-	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	94
63.0	91
50.0	82
37.5	76
28.0	73
20.0	69
14.0	67
5.00	60
2.000	34
0.425	9
0.250	7
0.150	5
0.075	3
50 µm	0
5 µm	0
2 µm	0.1

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	74
0.425 - 0.250	6
0.250 - 0.150	6
0.150 - 0.075	4
< 0.075	10

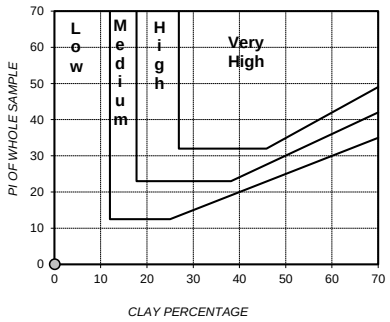
Effective size	0.497
Uniformity Coefficient	11.2
Curvature Coefficient	1.1
Oversize Index	24.0
Shrinkage Product	0
Grading Coefficient	22.8
Grading modulus	2.54

Atter-berg Limits

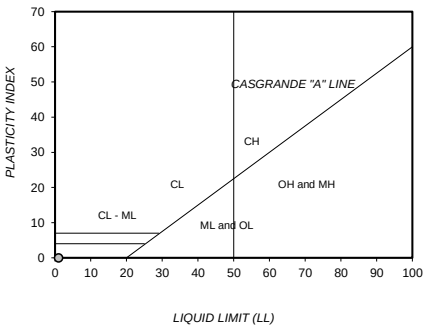
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-a (0)

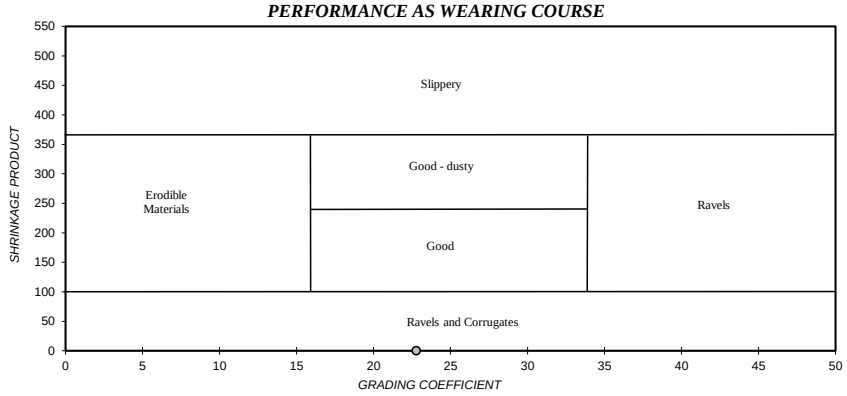
POTENTIAL EXPANSIVENES



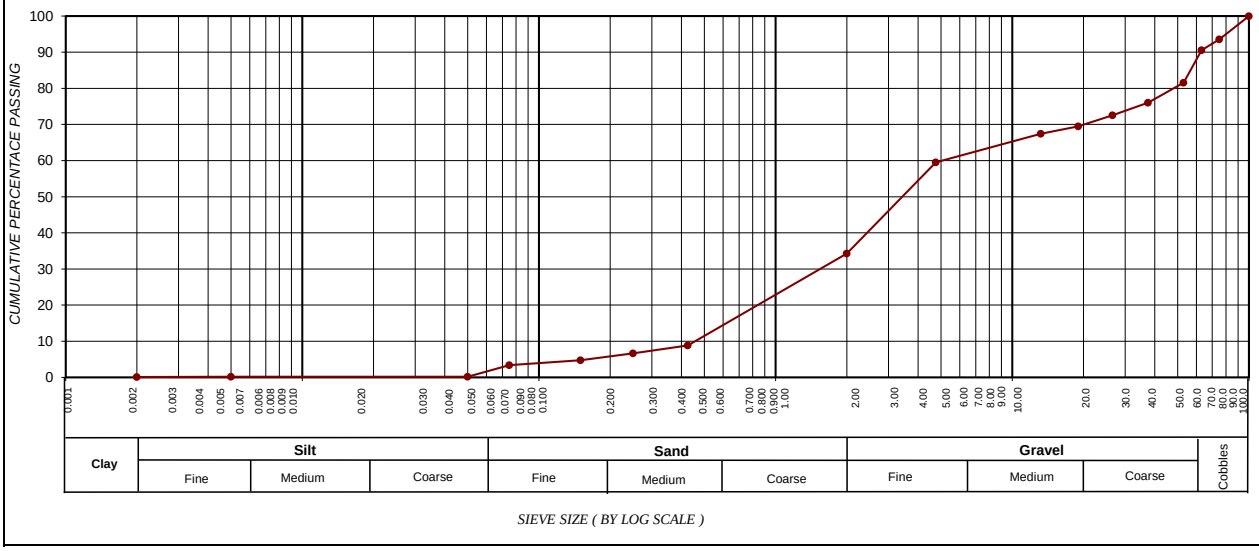
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.1	0.6	33.5	65.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP7
LAYER : 0.0-0.40mm
SAMPLE No. : PV 1
SAMPLE DESCRIPTION : Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	3.2	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	96
0.425	79
0.250	73
0.150	55
0.075	23
50 µm	3
5 µm	2
2 µm	1.7

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	18
0.425 - 0.250	7
0.250 - 0.150	18
0.150 - 0.075	34
< 0.075	24

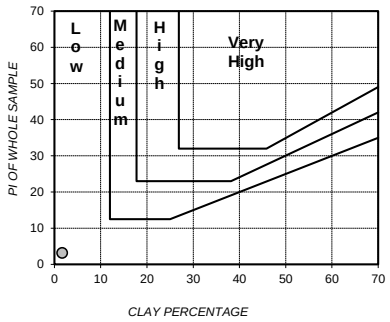
Effective size	0.059
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	150.5
Grading Coefficient	4.4
Grading modulus	1.03

Atter-berg Limits

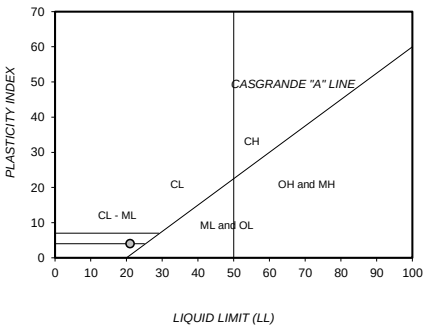
Liquid Limit	21
Plasticity Index	4
Linear Shrinkage	1.9
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

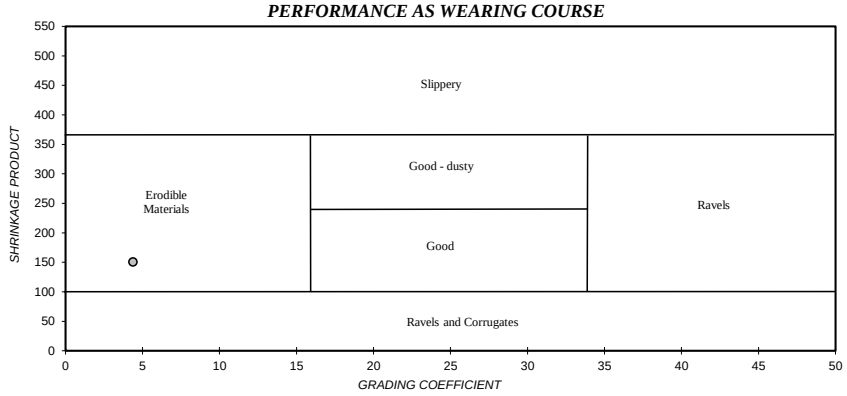
POTENTIAL EXPANSIVENES



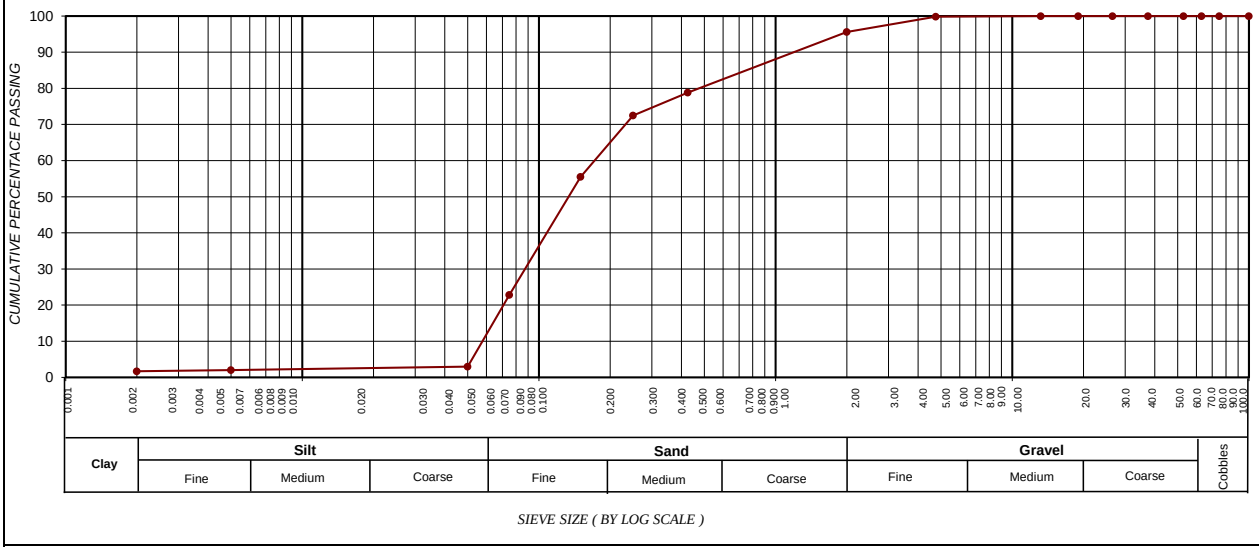
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.7	3.7	90.2	4.4

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP7-PV 1
LAYER : 0.0-0.40mm
SAMPLE No. : B15884
SAMPLE DESCRIPTION : Sand

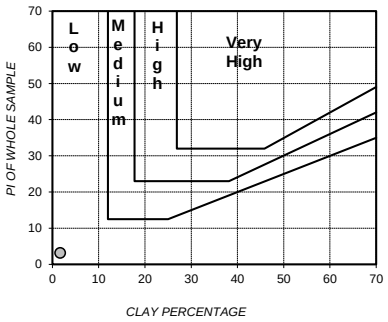
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**3.2**	**Specifc Gravity**	**2.35**

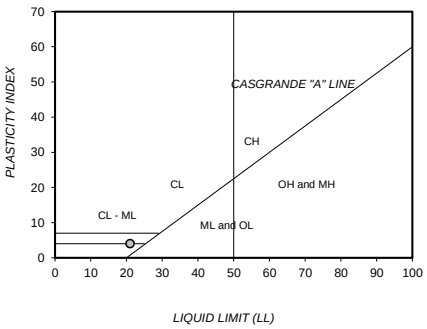
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	96
0.425	79
0.250	73
0.150	55
0.075	23
50 µm	3
5 µm	2
2 µm	1.7

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	18
0.425 - 0.250	7
0.250 - 0.150	18
0.150 - 0.075	34
< 0.075	24

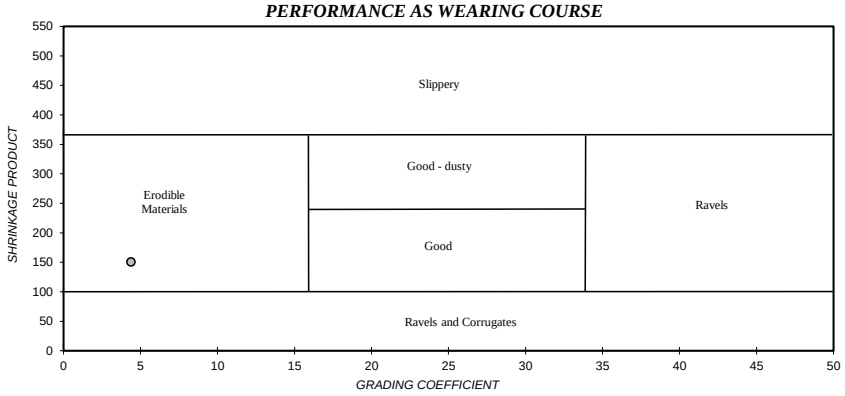
Effective size	0.059
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	150.5
Grading Coefficient	4.4
Grading modulus	1.03

Atter-berg Limits

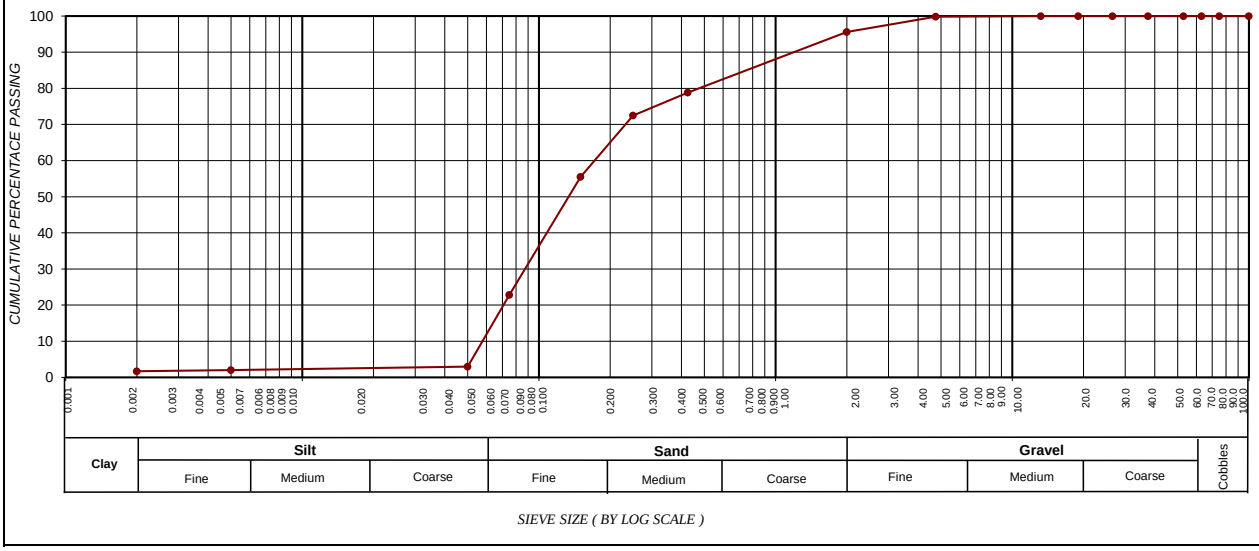
Liquid Limit	21
Plasticity Index	4
Linear Shrinkage	1.9
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.7	3.7	90.2	4.4

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 29.11.2024
POSITION : TP7
LAYER : 0.50-1.40mm
SAMPLE No. : PV4
SAMPLE DESCRIPTION : Residual Silty Sand

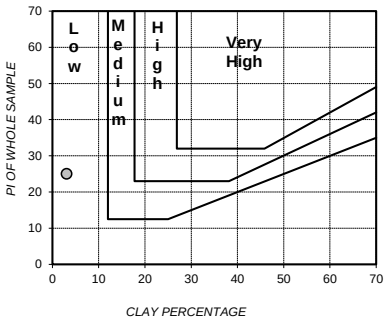
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**25.0**	**Specifc Gravity**	**2.35**

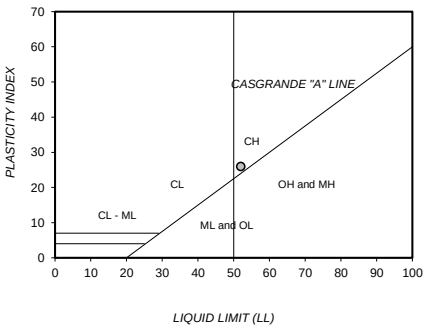
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	98
0.425	96
0.250	95
0.150	89
0.075	80
50 µm	11
5 µm	8
2 µm	3.1

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	2
0.425 - 0.250	1
0.250 - 0.150	6
0.150 - 0.075	9
< 0.075	82

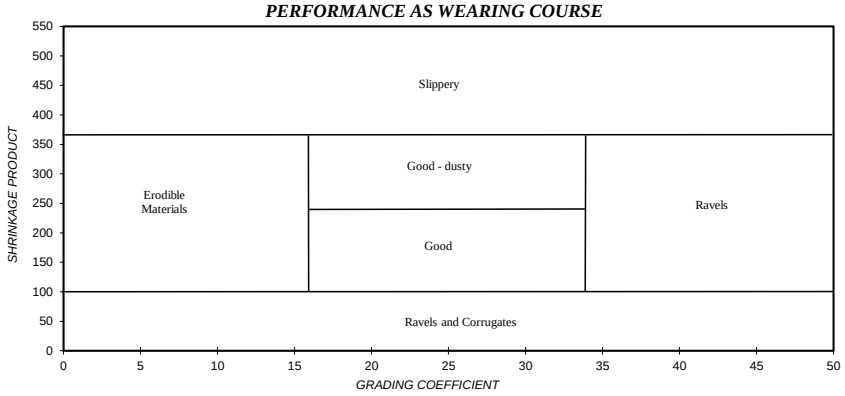
Effective size	0.037
Uniformity Coefficient	1.9
Curvature Coefficient	1.3
Oversize Index	0.0
Shrinkage Product	1315.1
Grading Coefficient	1.8
Grading modulus	0.25

Atter-berg Limits

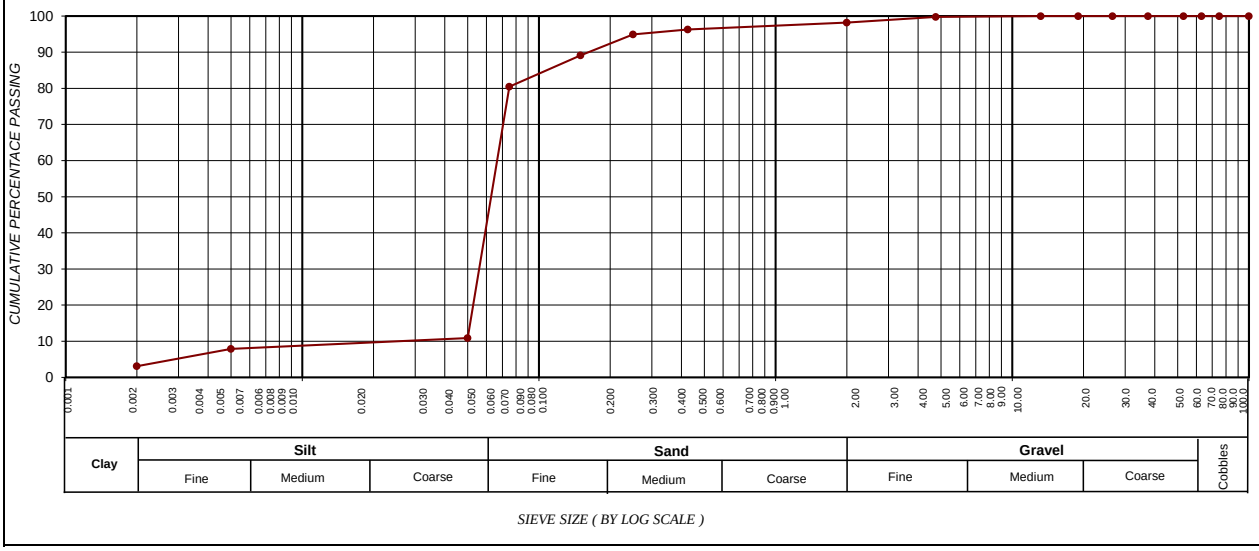
Liquid Limit	52
Plasticity Index	26
Linear Shrinkage	13.7
PI < 0.075	-

Unified Soil Classification	CH
U.S. Highway Classification	A-7-6 (22)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
3.1	25.1	70.0	1.8

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 23.11.2024
POSITION : TP 8
LAYER : 0.80-1.80mm
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Sandy Silt Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	3.3	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	99
5.00	95
2.000	92
0.425	83
0.250	79
0.150	69
0.075	52
50 µm	2
5 µm	2
2 µm	0.9

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	10
0.425 - 0.250	4
0.250 - 0.150	11
0.150 - 0.075	18
< 0.075	57

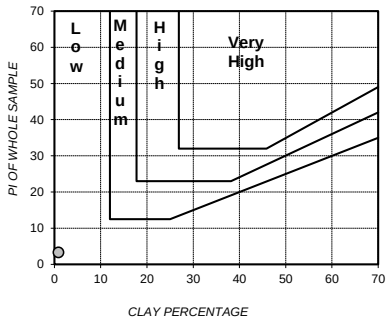
Effective size	0.054
Uniformity Coefficient	2.0
Curvature Coefficient	0.7
Oversize Index	0.0
Shrinkage Product	207.2
Grading Coefficient	7.2
Grading modulus	0.73

Atter-berg Limits

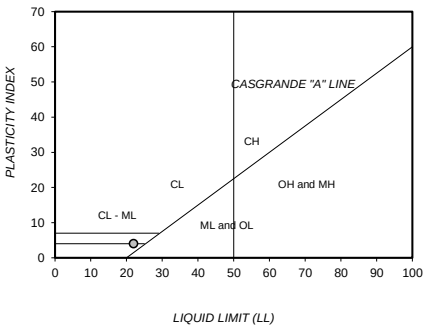
Liquid Limit	22
Plasticity Index	4
Linear Shrinkage	2.5
PI < 0.075	-

Unified Soil Classification	CL & ML
U.S. Highway Classification	A-4 (0)

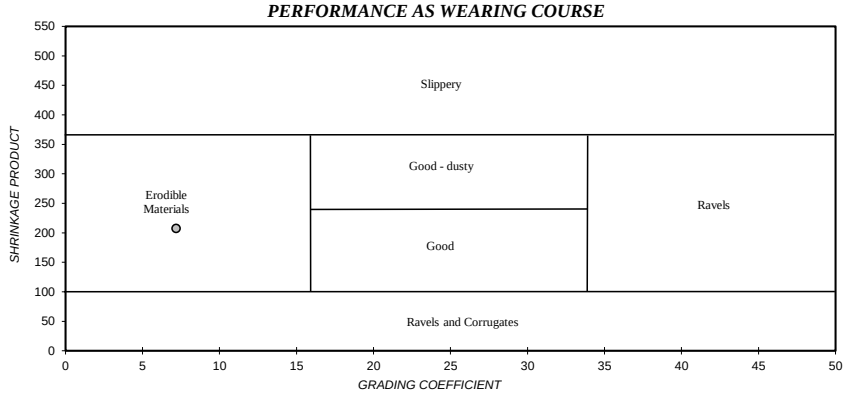
POTENTIAL EXPANSIVENES



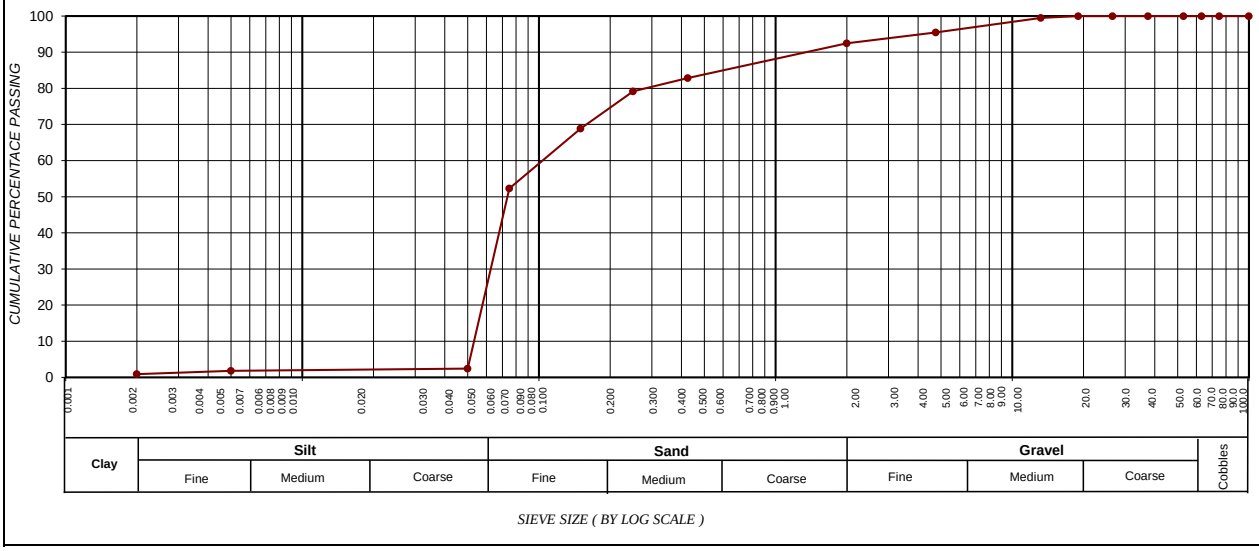
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.9	13.0	78.6	7.5

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP09
LAYER : 1.90-3.10mm
SAMPLE No. : PV2
SAMPLE DESCRIPTION : Sandy Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**2.7**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	93
63.0	93
50.0	90
37.5	88
28.0	85
20.0	83
14.0	83
5.00	72
2.000	60
0.425	46
0.250	40
0.150	32
0.075	21
50 µm	2
5 µm	1
2 µm	0.5

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	24
0.425 - 0.250	9
0.250 - 0.150	14
0.150 - 0.075	17
< 0.075	36

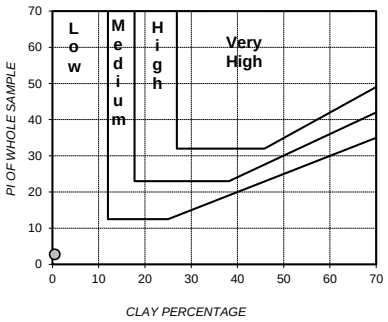
Effective size	0.060
Uniformity Coefficient	34.4
Curvature Coefficient	0.2
Oversize Index	12.1
Shrinkage Product	160.0
Grading Coefficient	18.1
Grading modulus	1.74

Atter-berg Limits

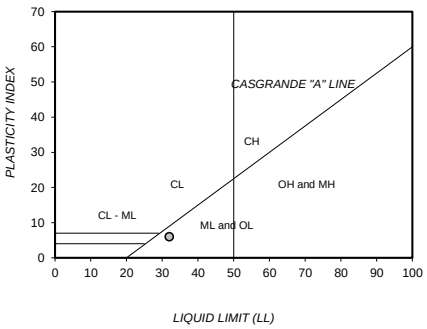
Liquid Limit	32
Plasticity Index	6
Linear Shrinkage	3.5
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

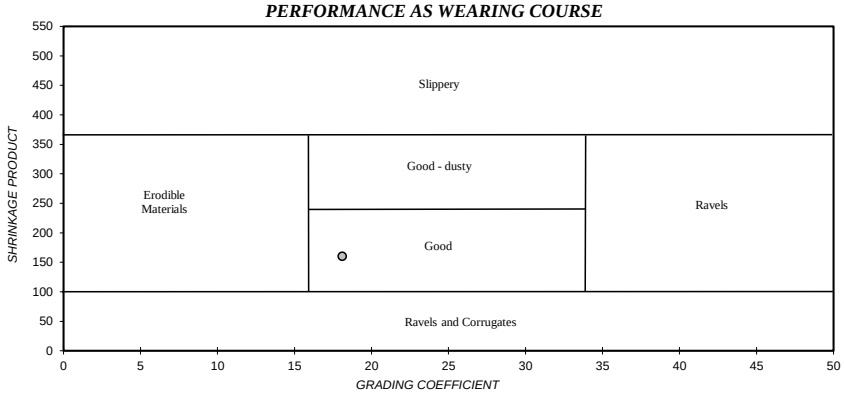
POTENTIAL EXPANSIVENES



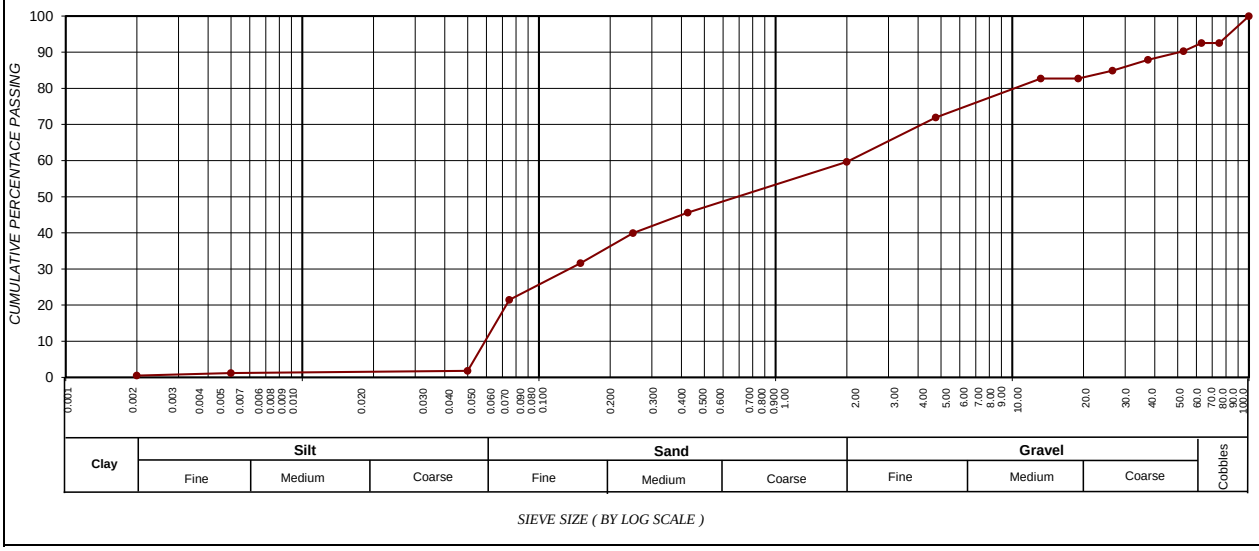
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.5	5.1	54.0	40.3

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 10
LAYER : 0.00-0.30mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Clayey Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	100
0.425	99
0.250	90
0.150	52
0.075	9
50 µm	3
5 µm	2
2 µm	1.1

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	1
0.425 - 0.250	9
0.250 - 0.150	38
0.150 - 0.075	44
< 0.075	9

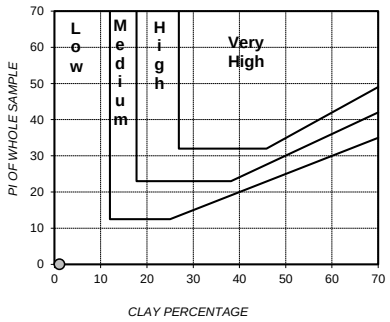
Effective size	0.077
Uniformity Coefficient	2.2
Curvature Coefficient	0.9
Oversize Index	0.0
Shrinkage Product	0
Grading Coefficient	0.0
Grading modulus	0.92

Atter-berg Limits

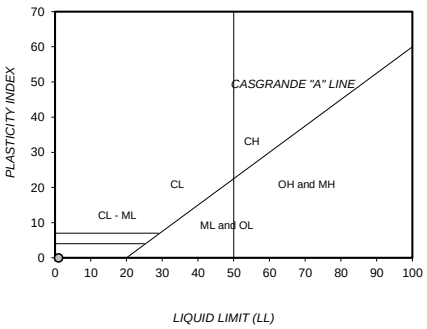
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-3 (0)

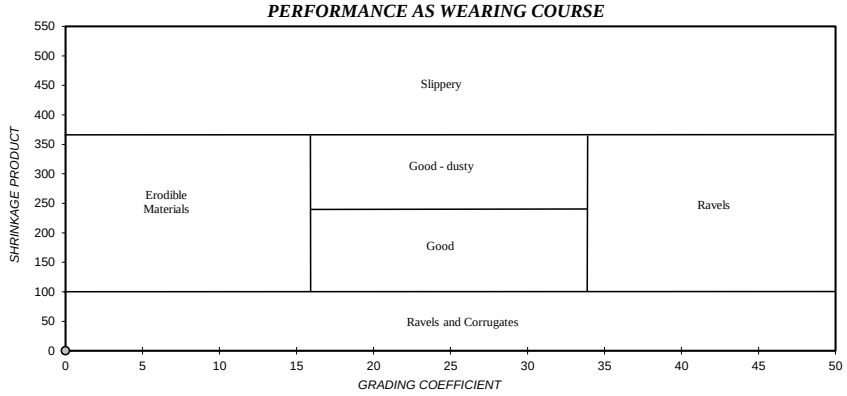
POTENTIAL EXPANSIVENES



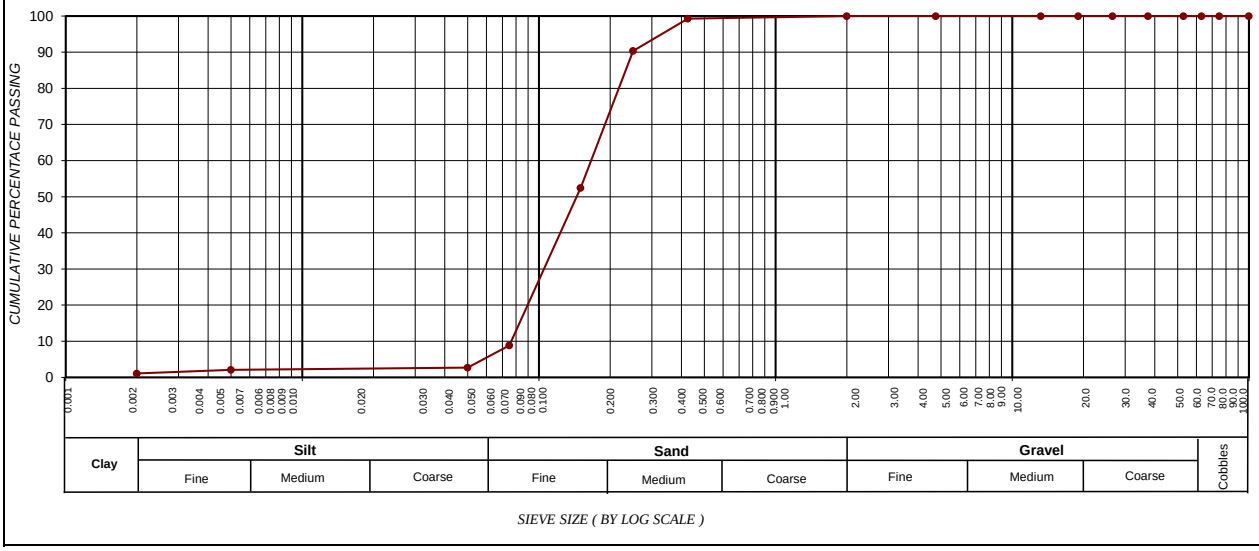
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.1	-0.4	99.3	0.0

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 12
LAYER : 1.80-3.00mm
SAMPLE No. : PV 4
SAMPLE DESCRIPTION : Gravelly Clay

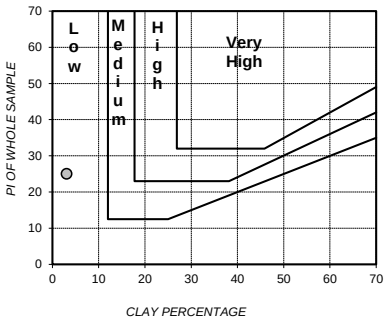
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**25.0**	**Specifc Gravity**	**2.35**

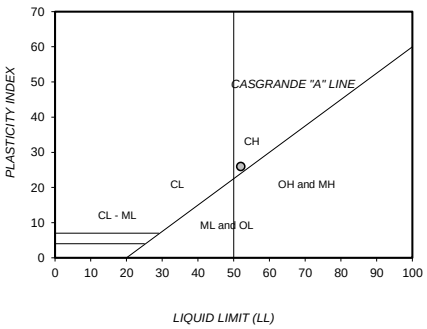
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	98
0.425	96
0.250	95
0.150	89
0.075	80
50 µm	11
5 µm	8
2 µm	3.1

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	2
0.425 - 0.250	1
0.250 - 0.150	6
0.150 - 0.075	9
< 0.075	82

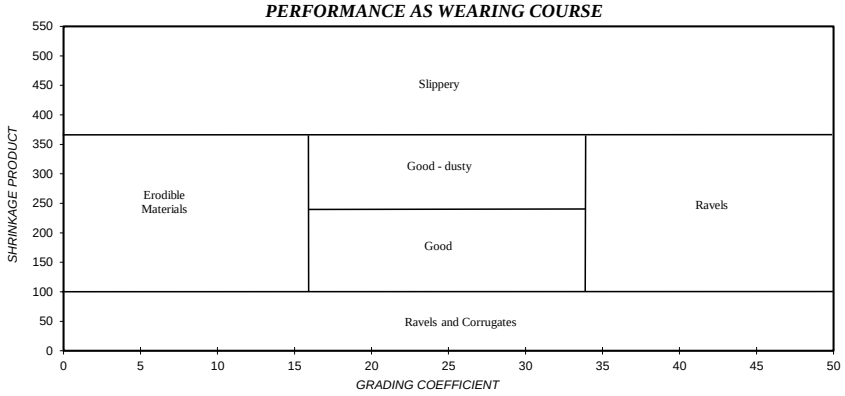
Effective size	0.037
Uniformity Coefficient	1.9
Curvature Coefficient	1.3
Oversize Index	0.0
Shrinkage Product	1315.1
Grading Coefficient	1.8
Grading modulus	0.25

Atter-berg Limits

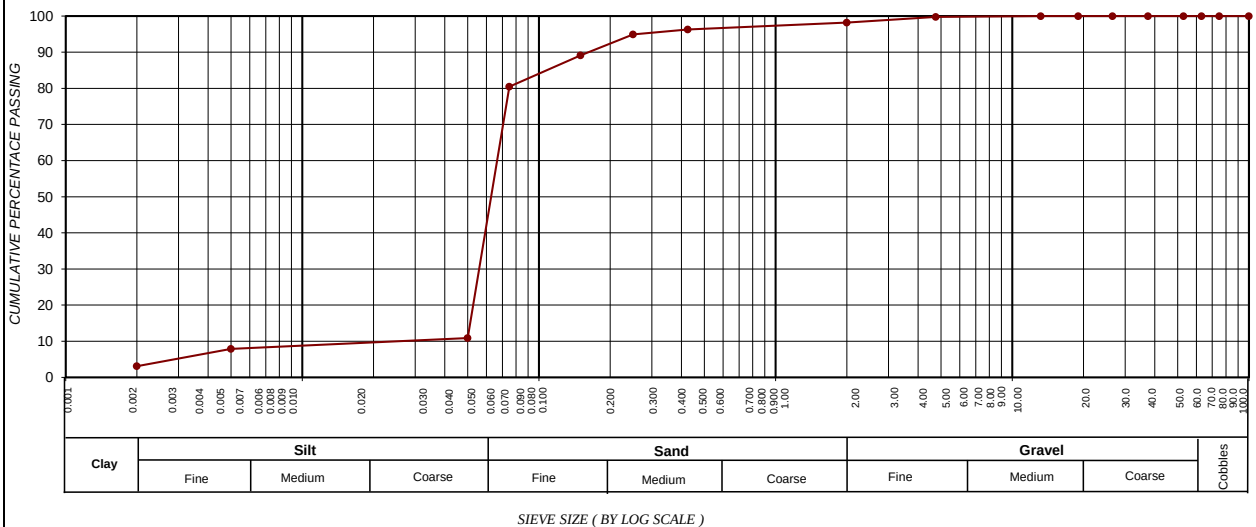
Liquid Limit	52
Plasticity Index	26
Linear Shrinkage	13.7
PI < 0.075	-

Unified Soil Classification	CH
U.S. Highway Classification	A-7-6 (22)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
3.1	25.1	70.0	1.8

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP13
LAYER : 1.10-3.10mm
SAMPLE No. : PV1
SAMPLE DESCRIPTION : Gravelly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	97
28.0	96
20.0	94
14.0	94
5.00	79
2.000	52
0.425	21
0.250	15
0.150	10
0.075	6
50 µm	1
5 µm	1
2 µm	0.2

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	59
0.425 - 0.250	11
0.250 - 0.150	9
0.150 - 0.075	9
< 0.075	11

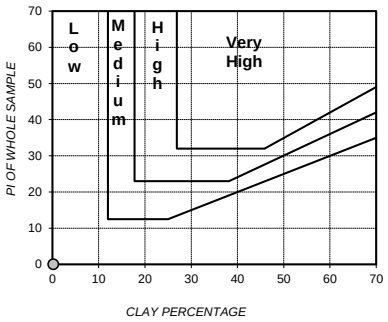
Effective size	0.145
Uniformity Coefficient	20.0
Curvature Coefficient	1.9
Oversize Index	2.5
Shrinkage Product	0
Grading Coefficient	35.2
Grading modulus	2.21

Atter-berg Limits

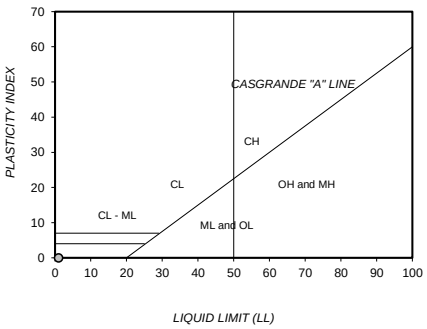
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

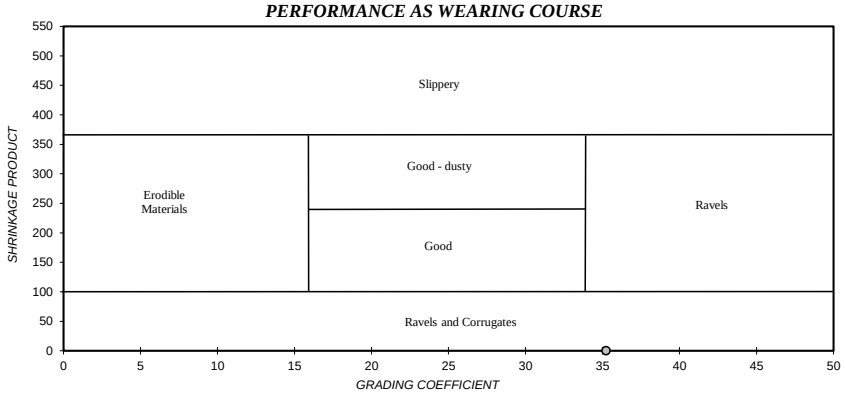
POTENTIAL EXPANSIVENES



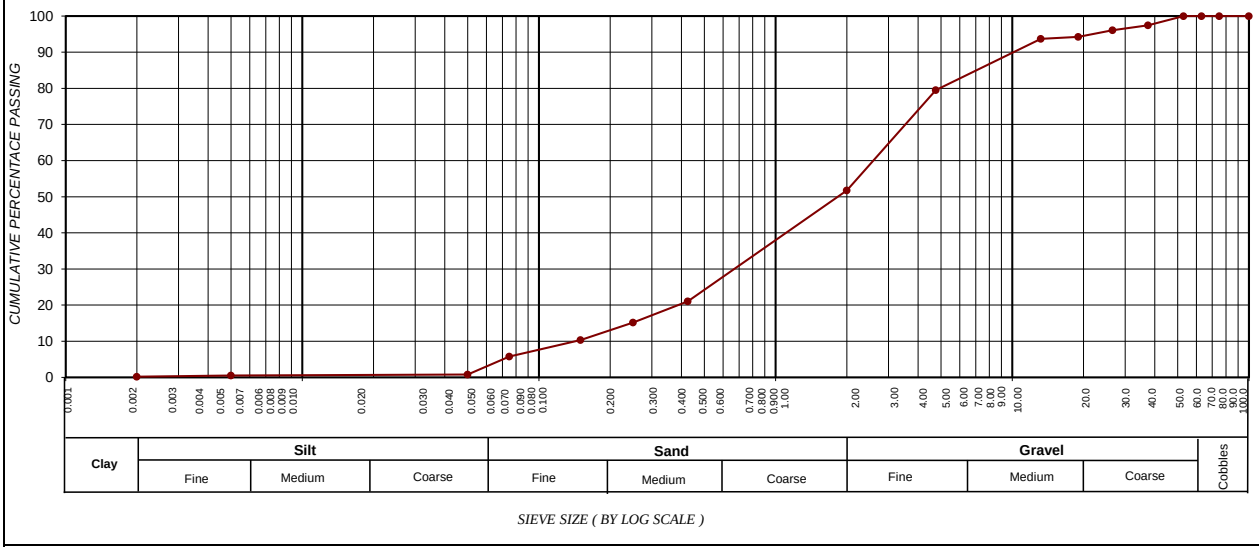
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.2	1.6	49.9	48.3

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 17
LAYER : 0.00-0.40mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Clayey Sand

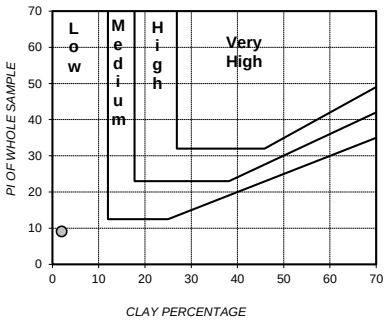
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	9.1	Specifc Gravity	2.35

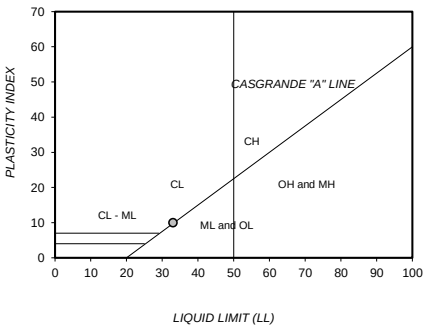
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	99
2.000	97
0.425	91
0.250	85
0.150	60
0.075	26
50 µm	7
5 µm	5
2 µm	2.0

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	7
0.425 - 0.250	6
0.250 - 0.150	25
0.150 - 0.075	35
< 0.075	27

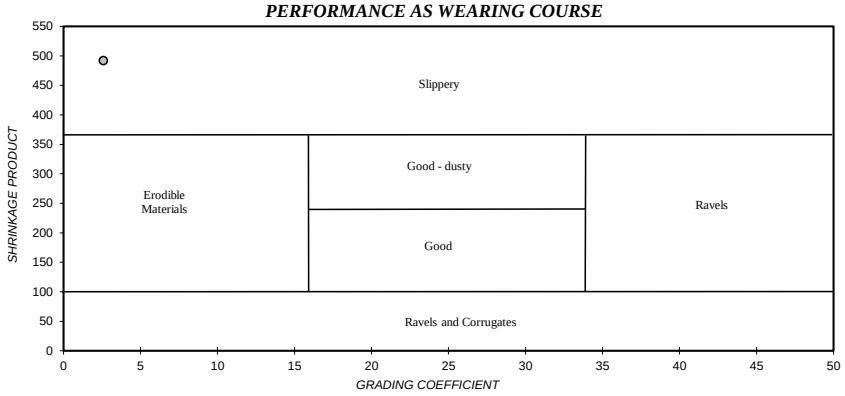
Effective size	0.054
Uniformity Coefficient	2.8
Curvature Coefficient	0.9
Oversize Index	0.0
Shrinkage Product	492.1
Grading Coefficient	2.6
Grading modulus	0.86

Atter-berg Limits

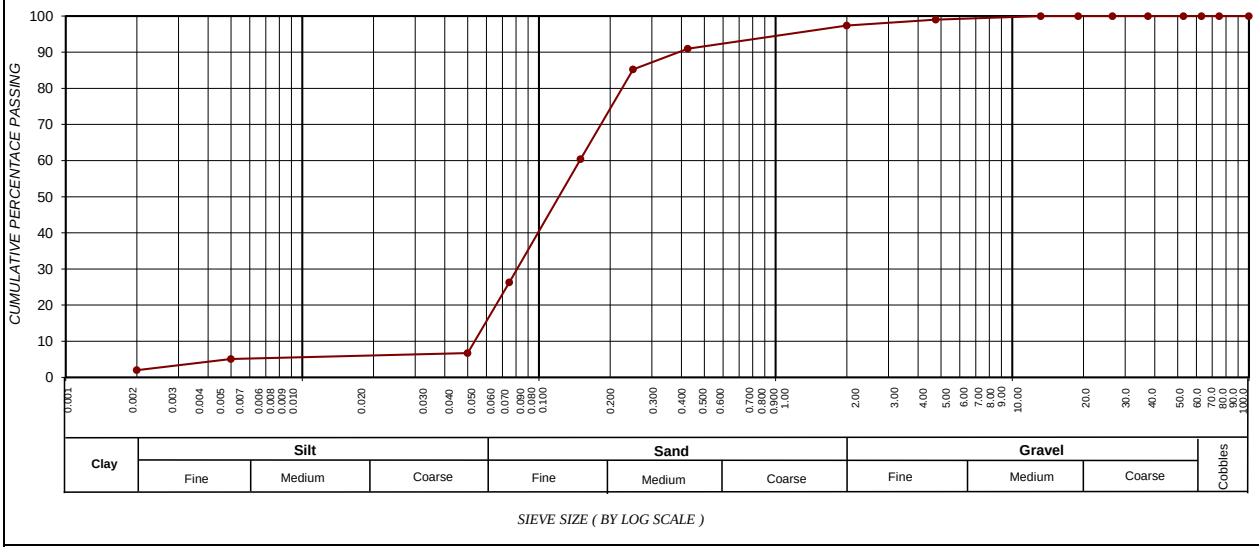
Liquid Limit	33
Plasticity Index	10
Linear Shrinkage	5.4
PI < 0.075	-

Unified Soil Classification	SC
U.S. Highway Classification	A-2-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
2.0	6.9	88.5	2.6

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 29.11.2024
POSITION : TP20
LAYER : 0.00-0.30mm
SAMPLE No. : PV1
SAMPLE DESCRIPTION : Reddish Silty Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**3.9**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	99
0.425	98
0.250	94
0.150	71
0.075	39
50 µm	5
5 µm	4
2 µm	1.7

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	2
0.425 - 0.250	4
0.250 - 0.150	23
0.150 - 0.075	33
< 0.075	39

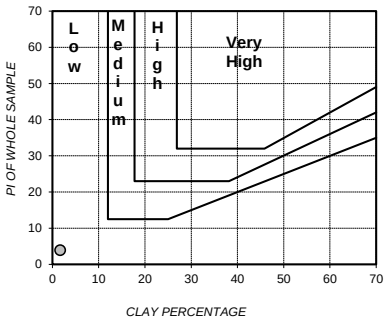
Effective size	0.054
Uniformity Coefficient	2.3
Curvature Coefficient	0.7
Oversize Index	0.0
Shrinkage Product	168.5
Grading Coefficient	0.5
Grading modulus	0.64

Atter-berg Limits

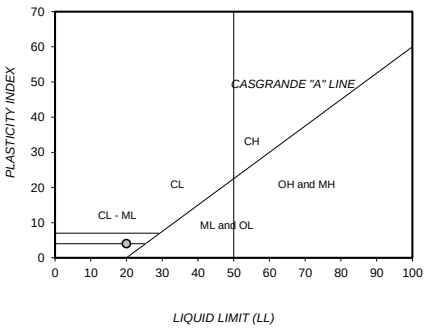
Liquid Limit	20
Plasticity Index	4
Linear Shrinkage	1.7
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-4 (0)

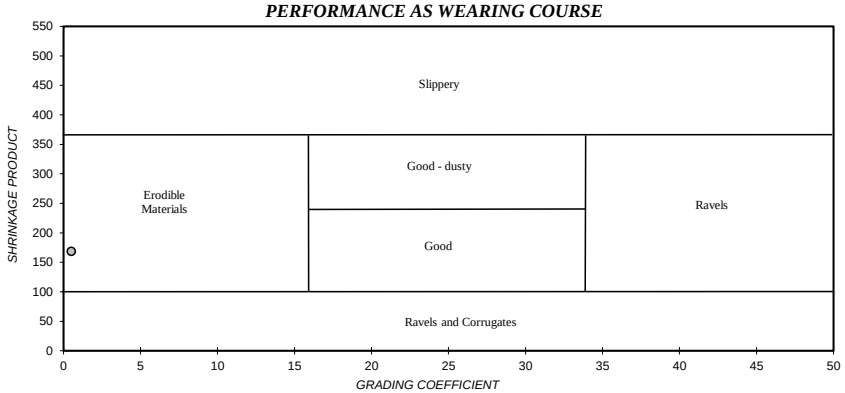
POTENTIAL EXPANSIVENES



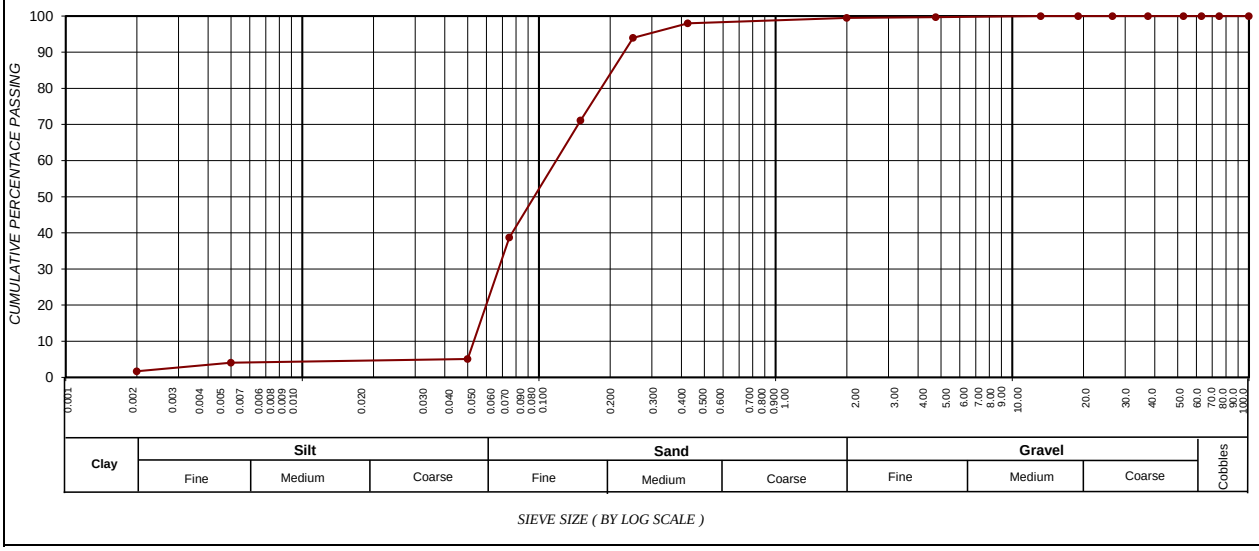
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.7	9.5	88.3	0.5

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 21
LAYER : 0.50-1.20mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Clayey Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	4.1	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	99
5.00	97
2.000	94
0.425	83
0.250	75
0.150	56
0.075	24
50 µm	5
5 µm	3
2 µm	1.4

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	12
0.425 - 0.250	8
0.250 - 0.150	20
0.150 - 0.075	34
< 0.075	25

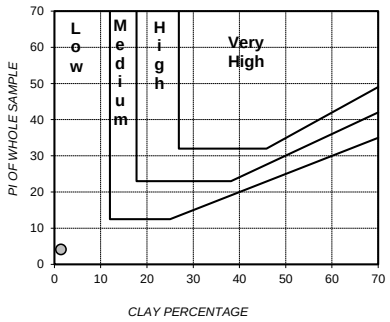
Effective size	0.057
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	212.1
Grading Coefficient	5.7
Grading modulus	0.99

Atter-berg Limits

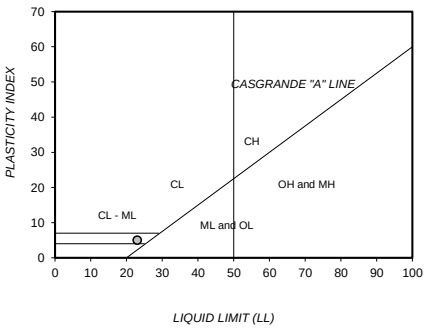
Liquid Limit	23
Plasticity Index	5
Linear Shrinkage	2.6
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

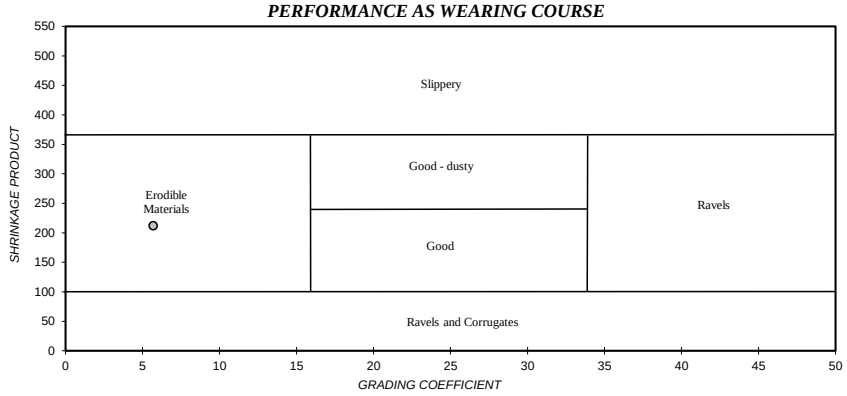
POTENTIAL EXPANSIVENES



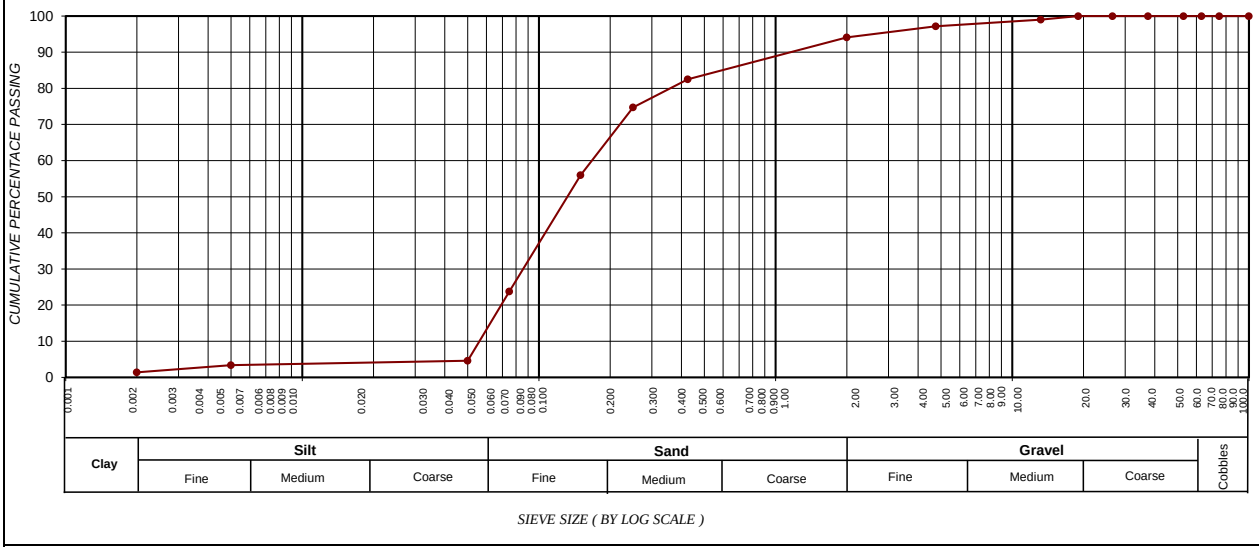
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.4	5.9	86.8	5.9

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 29.11.2024
POSITION : TP21
LAYER : 0.40-0.90mm
SAMPLE No. : PV2
SAMPLE DESCRIPTION : Reddish Sand Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	2.2	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	98
50.0	98
37.5	98
28.0	89
20.0	80
14.0	79
5.00	57
2.000	42
0.425	27
0.250	23
0.150	16
0.075	11
50 µm	2
5 µm	2
2 µm	0.7

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	35
0.425 - 0.250	10
0.250 - 0.150	16
0.150 - 0.075	13
< 0.075	26

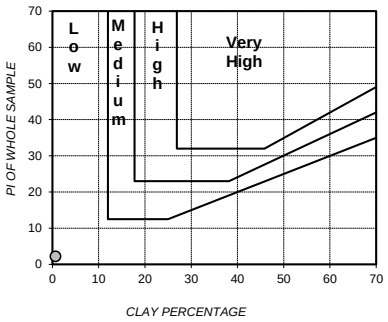
Effective size	0.072
Uniformity Coefficient	88.1
Curvature Coefficient	1.0
Oversize Index	2.2
Shrinkage Product	105.1
Grading Coefficient	26.1
Grading modulus	2.19

Atter-berg Limits

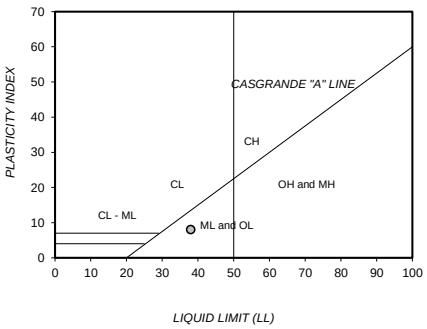
Liquid Limit	38
Plasticity Index	8
Linear Shrinkage	3.8
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-2-4 (0)

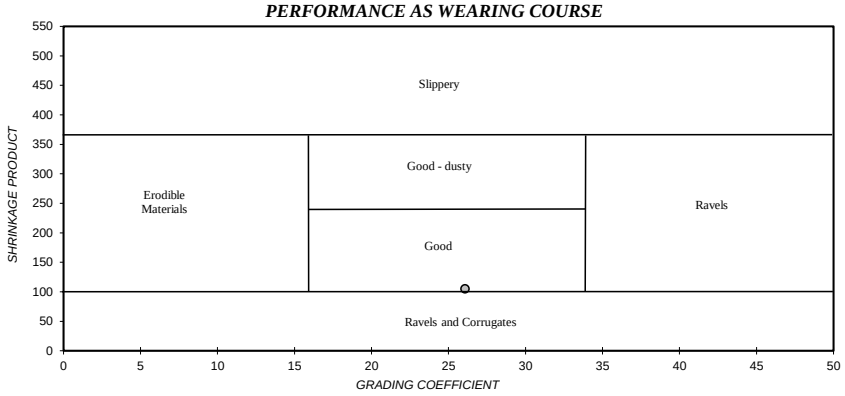
POTENTIAL EXPANSIVENES



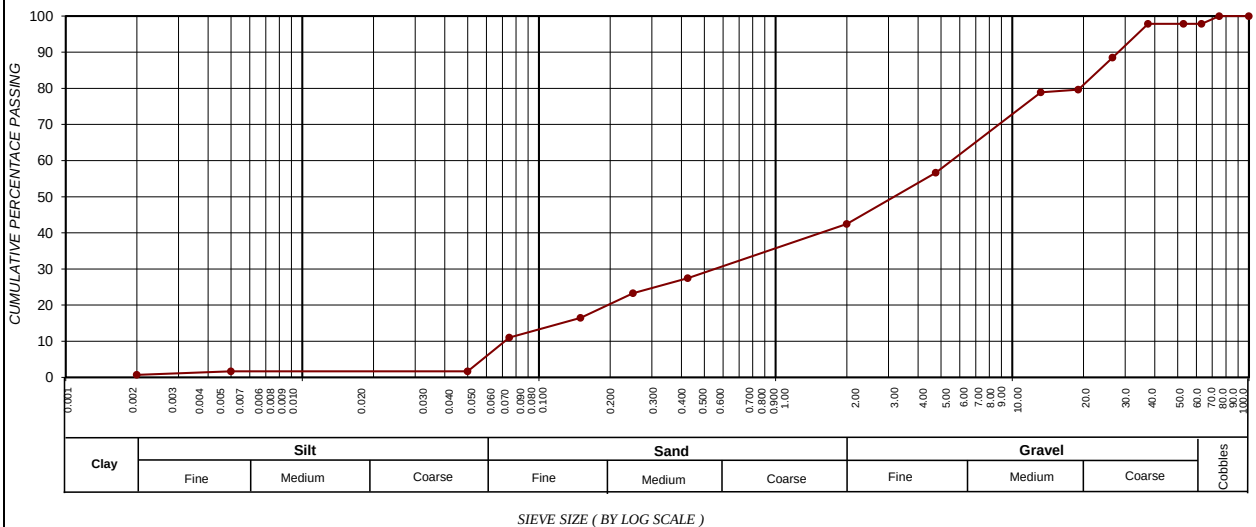
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.7	2.9	38.8	57.5

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

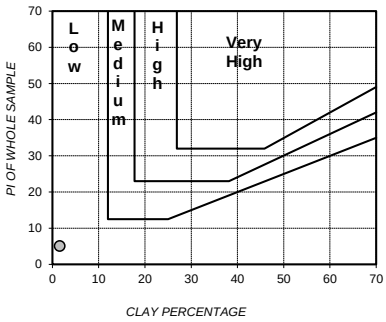
DATE RECEIVED : 30.11.2024
POSITION : TP 21
LAYER : 0,40-1,40mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Sandy Gravelly Silt

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

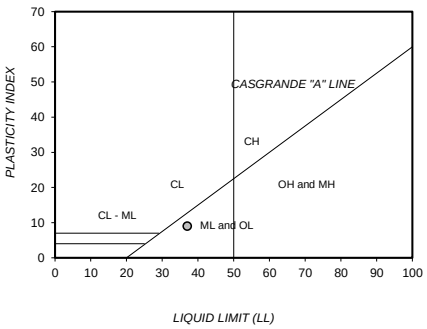
Weighted PI	**5.1**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)	
100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	97
5.00	83
2.000	70
0.425	56
0.250	53
0.150	46
0.075	37
50 µm	4
5 µm	3
2 µm	1.6

POTENTIAL EXPANSIVENES



PLASTICITY CHART



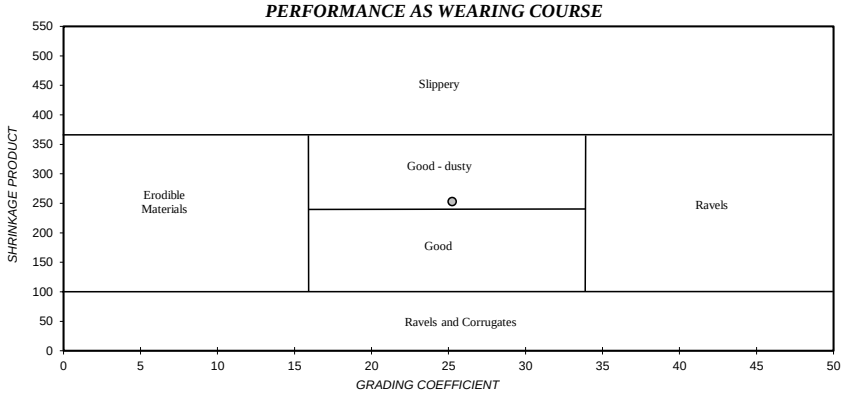
Soil Mortar Analysis % < 2.00mm	
2.000 - 0.425	19
0.425 - 0.250	5
0.250 - 0.150	11
0.150 - 0.075	12
< 0.075	53

Effective size	0.055
Uniformity Coefficient	15.9
Curvature Coefficient	0.1
Oversize Index	0.0
Shrinkage Product	252.9
Grading Coefficient	25.3
Grading modulus	1.37

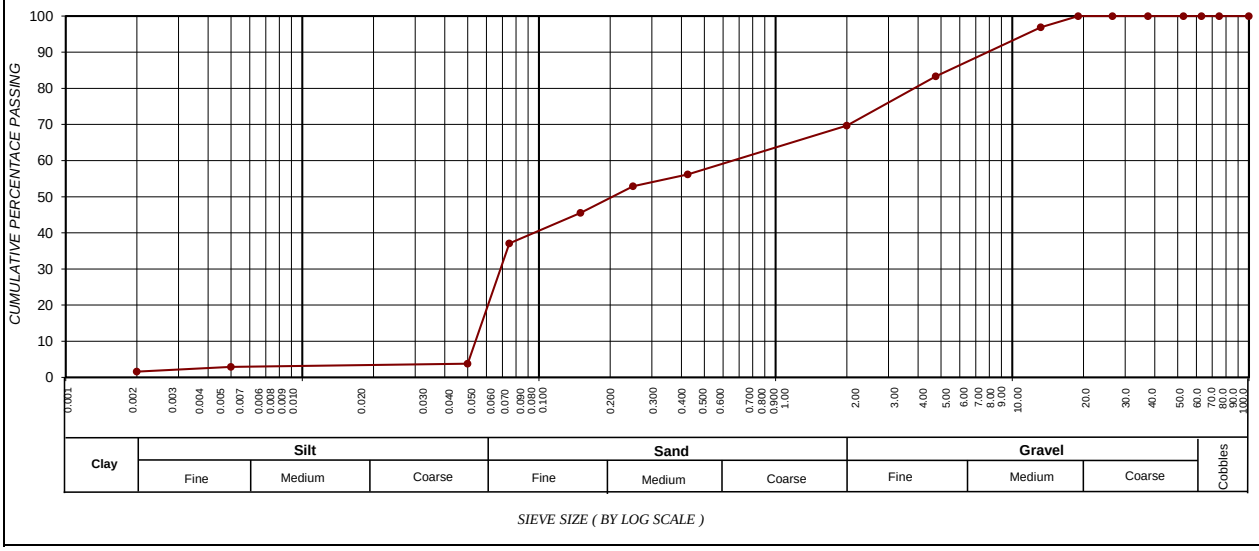
Atter-berg Limits	
Liquid Limit	37
Plasticity Index	9
Linear Shrinkage	4.5
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.6	10.2	57.9	30.3

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP21
LAYER : 0.40-2.40mm
SAMPLE No. : PV04
SAMPLE DESCRIPTION : Sandy Gravel

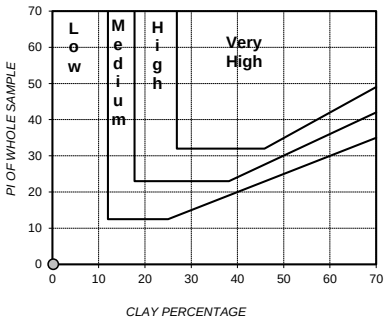
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

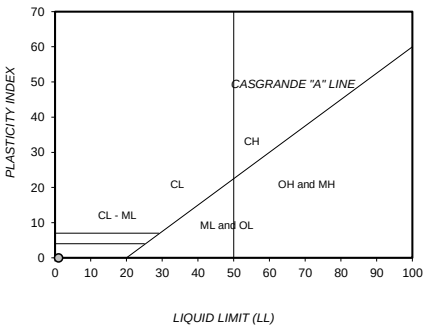
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	99
28.0	92
20.0	82
14.0	82
5.00	72
2.000	46
0.425	22
0.250	22
0.150	16
0.075	8
50 µm	1
5 µm	1
2 µm	0.2

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	52
0.425 - 0.250	0
0.250 - 0.150	13
0.150 - 0.075	18
< 0.075	17

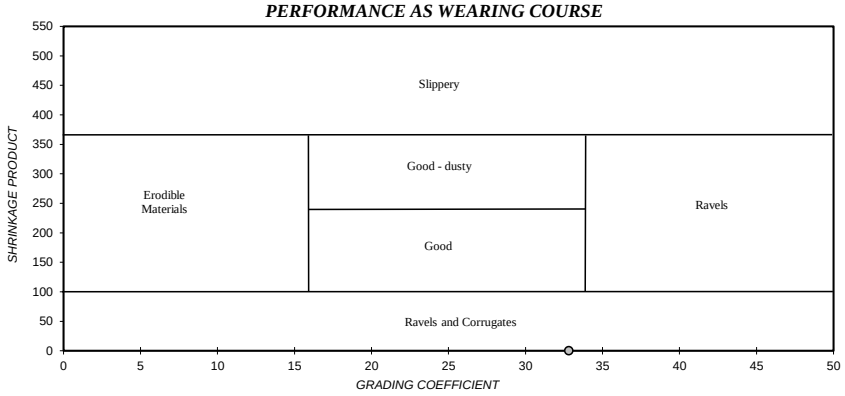
Effective size	0.094
Uniformity Coefficient	38.1
Curvature Coefficient	2.5
Oversize Index	1.0
Shrinkage Product	0
Grading Coefficient	32.8
Grading modulus	2.23

Atter-berg Limits

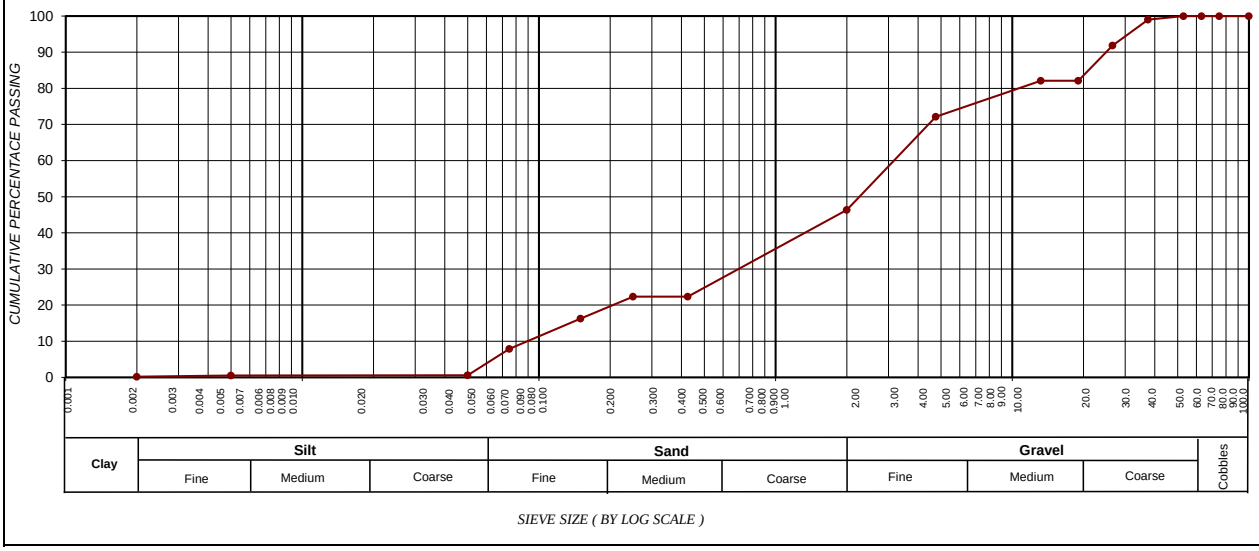
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-a (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	**SILT (%) (0.002-0.060)**	**SAND (%) (0.060-2.00)**	**GRAVEL (%) (2.00-60.0)**
0.2	**1.6**	**44.6**	**53.6**

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 22
LAYER : 0.20-0.35mm
SAMPLE No. : PV1
SAMPLE DESCRIPTION : Sitly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	-	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	100
0.425	99
0.250	90
0.150	52
0.075	9
50 µm	3
5 µm	2
2 µm	1.1

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	1
0.425 - 0.250	9
0.250 - 0.150	38
0.150 - 0.075	44
< 0.075	9

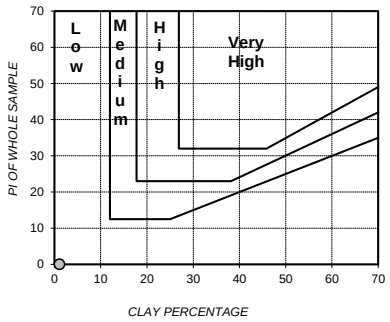
Effective size	0.077
Uniformity Coefficient	2.2
Curvature Coefficient	0.9
Oversize Index	0.0
Shrinkage Product	0
Grading Coefficient	0.0
Grading modulus	0.92

Atter-berg Limits

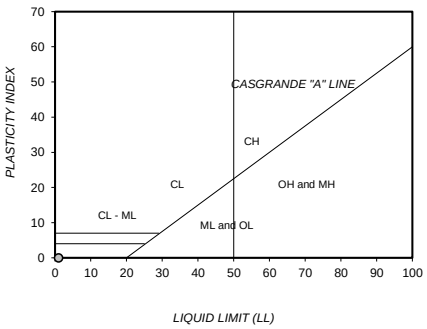
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-3 (0)

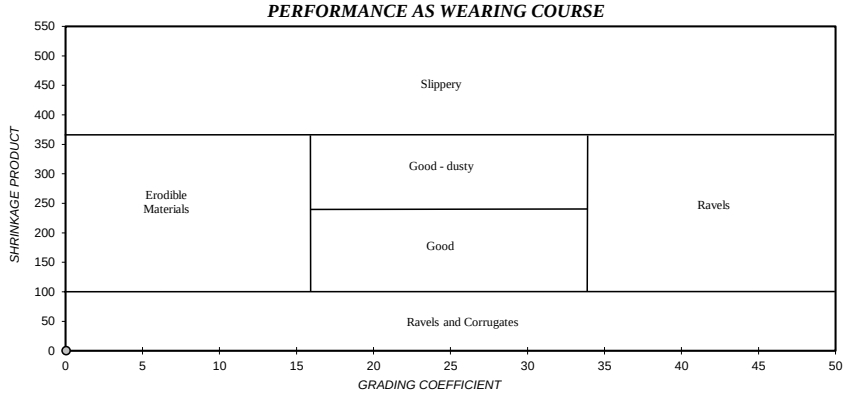
POTENTIAL EXPANSIVENES



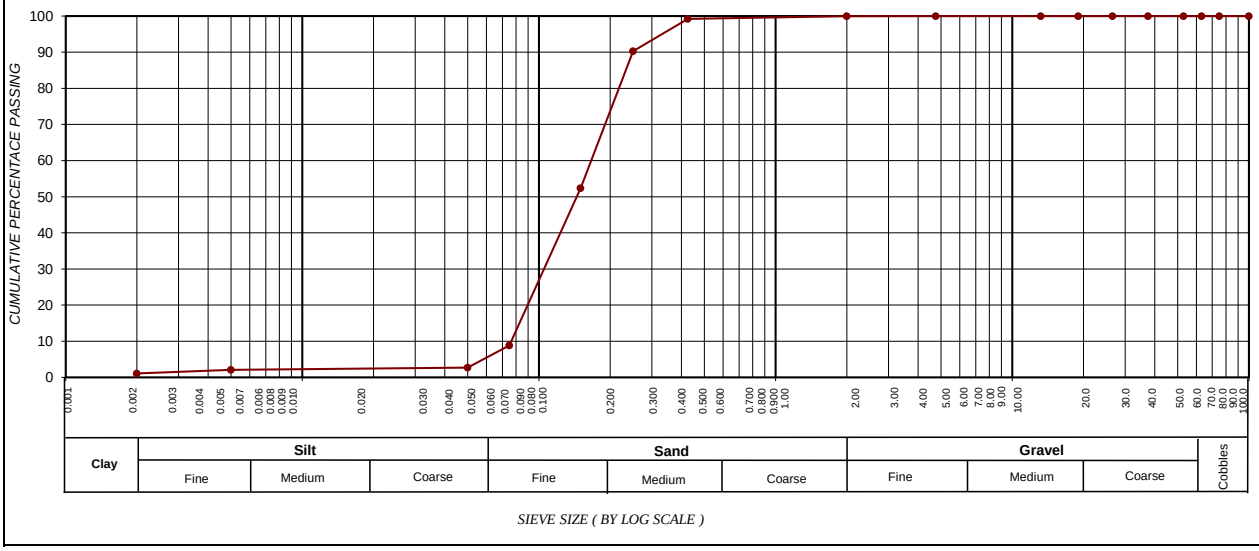
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.1	-0.4	99.3	0.0

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 23
LAYER : 0.00-0.40mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Clay Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	4.1	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	99
5.00	97
2.000	94
0.425	83
0.250	75
0.150	56
0.075	24
50 µm	5
5 µm	3
2 µm	1.4

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	12
0.425 - 0.250	8
0.250 - 0.150	20
0.150 - 0.075	34
< 0.075	25

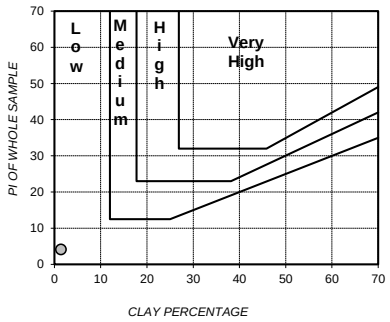
Effective size	0.057
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	212.1
Grading Coefficient	5.7
Grading modulus	0.99

Atter-berg Limits

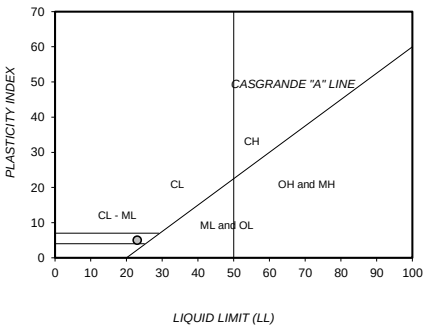
Liquid Limit	23
Plasticity Index	5
Linear Shrinkage	2.6
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

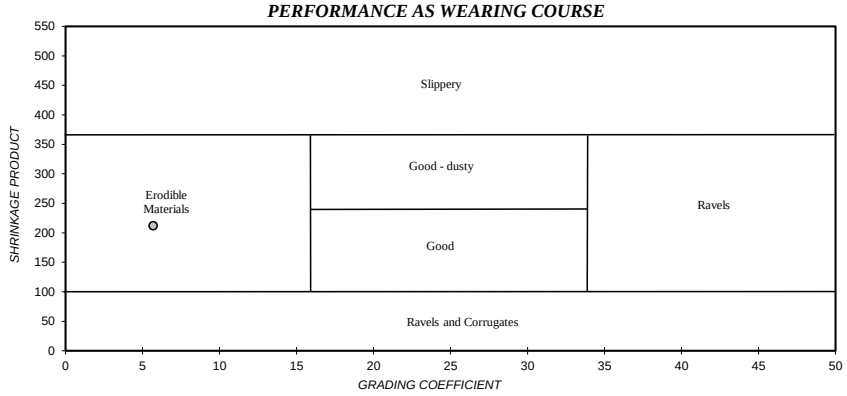
POTENTIAL EXPANSIVENES



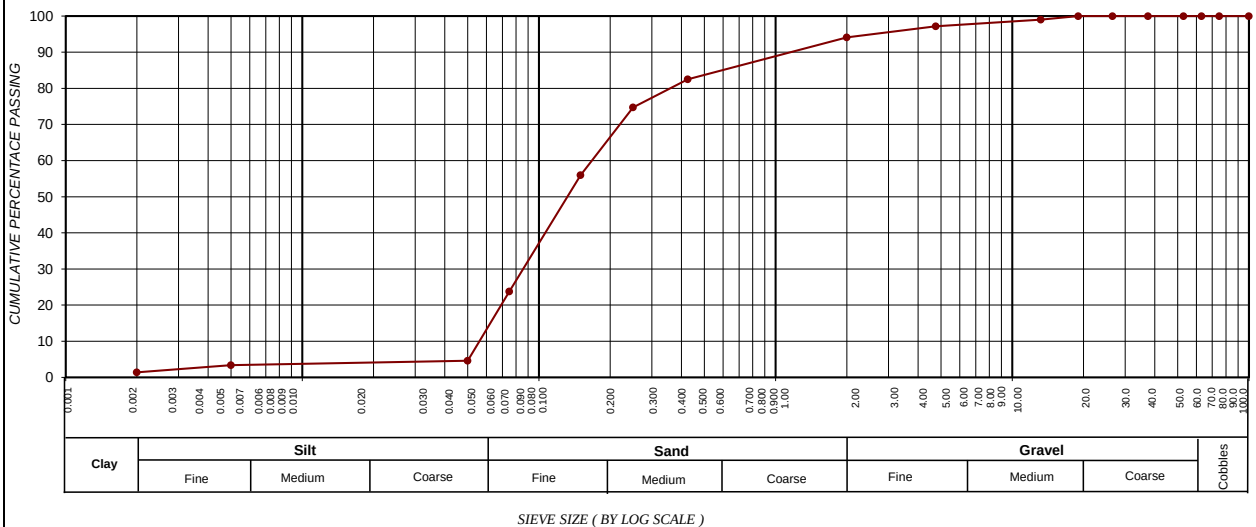
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.4	5.9	86.8	5.9

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OUR REF : BLO01-RBFSME001-1-
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PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 23
LAYER : 1.5-3.10mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Clay Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**20.4**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	99
5.00	97
2.000	90
0.425	89
0.250	85
0.150	78
0.075	15
50 µm	5
5 µm	4
2 µm	1.5

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	2
0.425 - 0.250	4
0.250 - 0.150	8
0.150 - 0.075	70
< 0.075	16

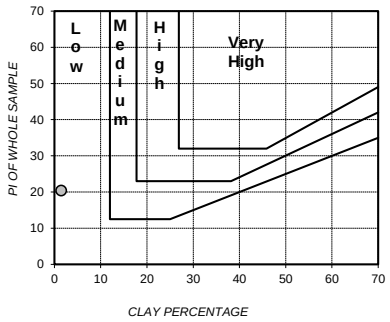
Effective size	0.063
Uniformity Coefficient	2.0
Curvature Coefficient	1.1
Oversize Index	0.0
Shrinkage Product	973.7
Grading Coefficient	9.4
Grading modulus	1.06

Atter-berg Limits

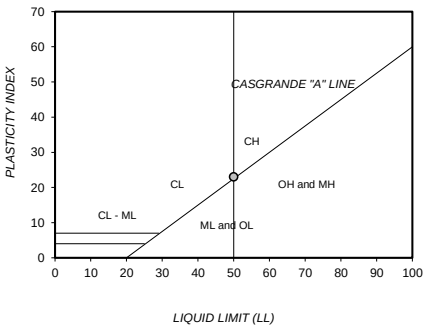
Liquid Limit	50
Plasticity Index	23
Linear Shrinkage	11.0
PI < 0.075	-

Unified Soil Classification	SC
U.S. Highway Classification	A-2-7 (0)

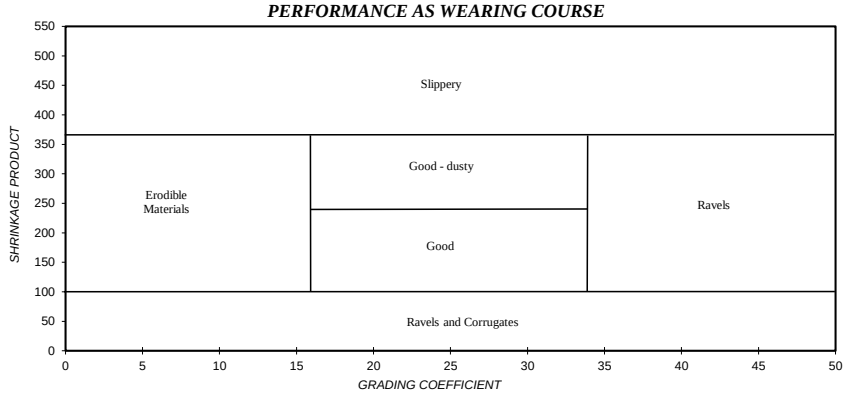
POTENTIAL EXPANSIVENES



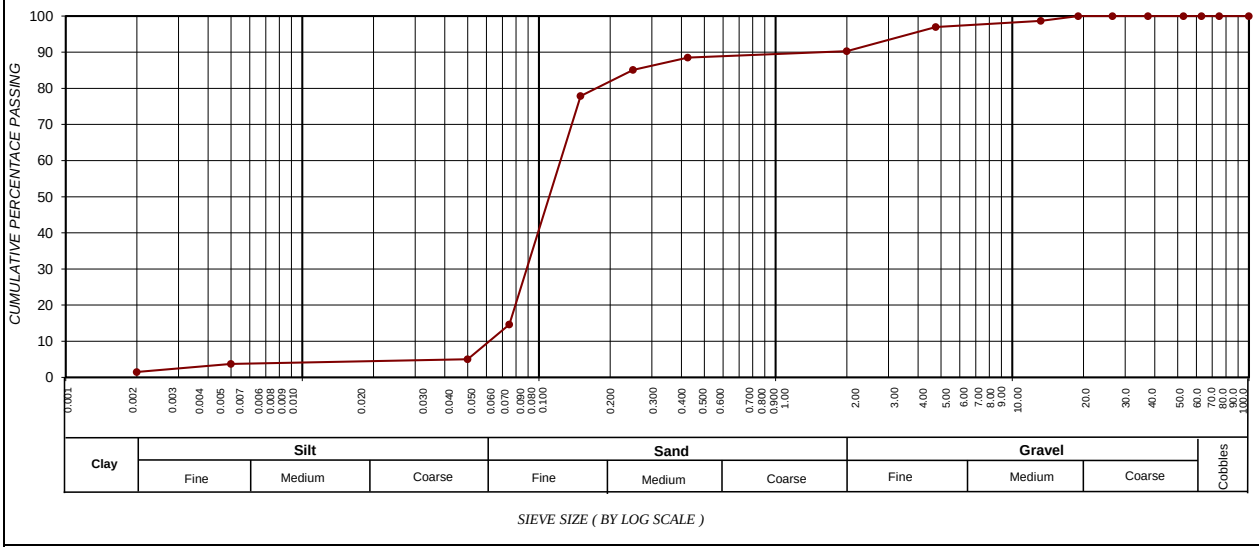
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.5	1.5	87.3	9.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 23
LAYER : 00.0-0.30mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Silty Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	-	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	100
0.425	99
0.250	90
0.150	52
0.075	9
50 µm	3
5 µm	2
2 µm	1.1

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	1
0.425 - 0.250	9
0.250 - 0.150	38
0.150 - 0.075	44
< 0.075	9

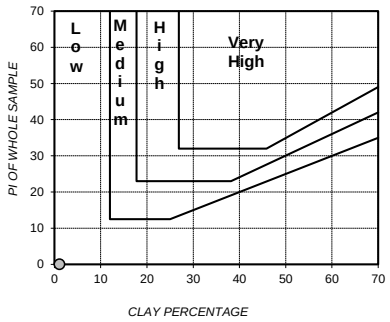
Effective size	0.077
Uniformity Coefficient	2.2
Curvature Coefficient	0.9
Oversize Index	0.0
Shrinkage Product	0
Grading Coefficient	0.0
Grading modulus	0.92

Atter-berg Limits

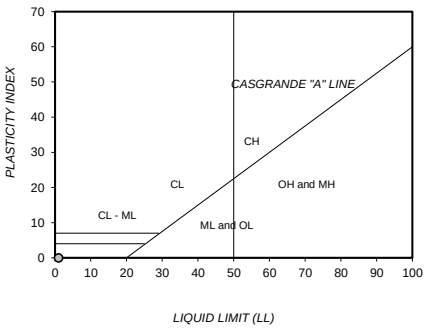
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-3 (0)

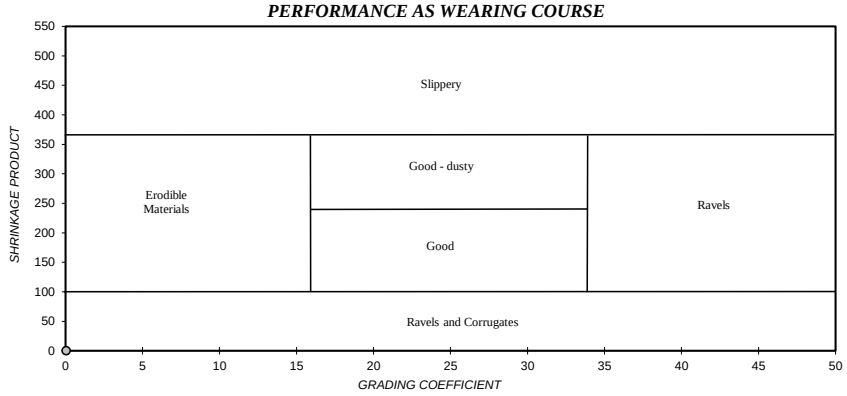
POTENTIAL EXPANSIVENES



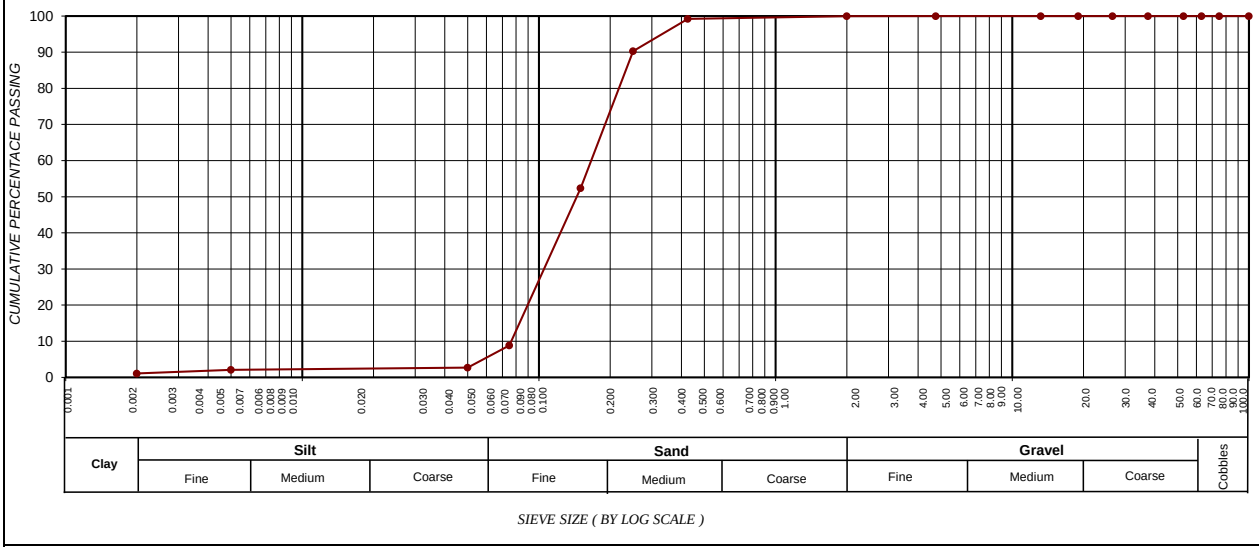
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.1	-0.4	99.3	0.0

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 24
LAYER : 0.60-1.30mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Sand Gravel

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	97
50.0	94
37.5	89
28.0	84
20.0	77
14.0	77
5.00	67
2.000	57
0.425	25
0.250	19
0.150	13
0.075	9
50 µm	1
5 µm	1
2 µm	0.3

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	57
0.425 - 0.250	10
0.250 - 0.150	10
0.150 - 0.075	7
< 0.075	16

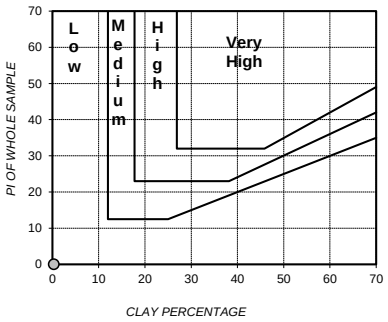
Effective size	0.093
Uniformity Coefficient	30.2
Curvature Coefficient	1.8
Oversize Index	11.1
Shrinkage Product	0
Grading Coefficient	17.6
Grading modulus	2.09

Atter-berg Limits

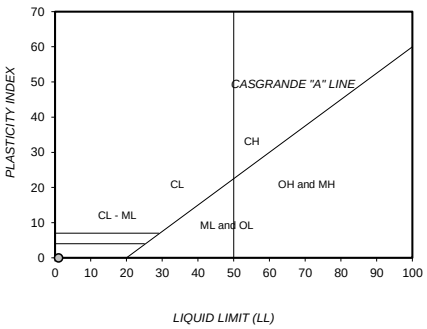
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

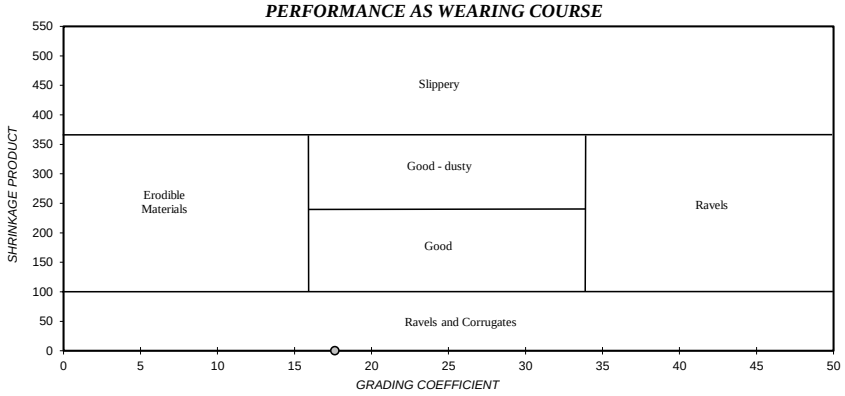
POTENTIAL EXPANSIVENES



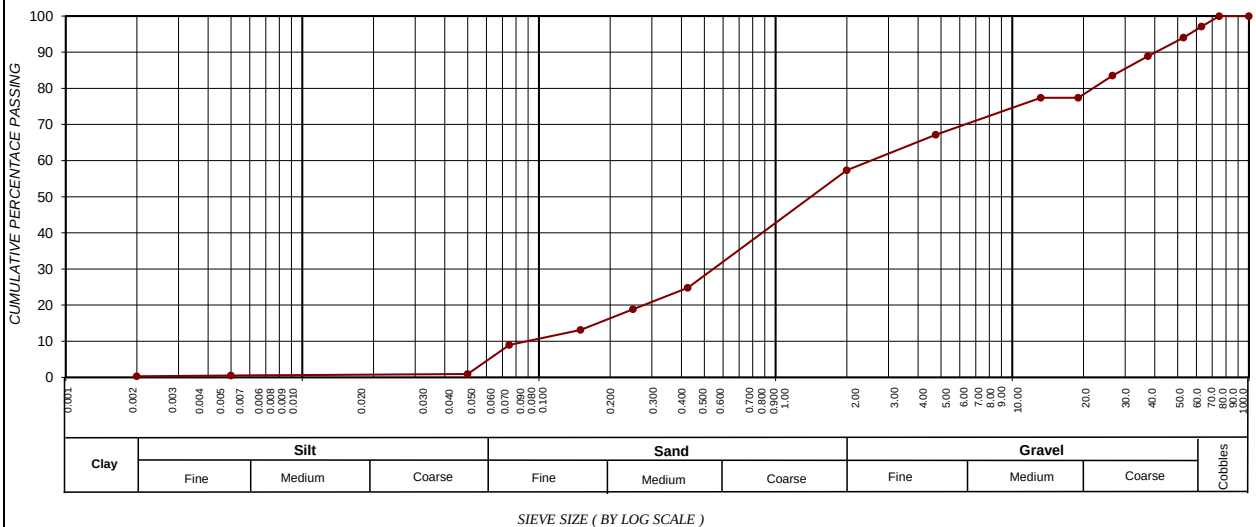
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.3	2.3	54.7	42.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP27
LAYER : 0.20-0.90mm
SAMPLE No. : PV 3
SAMPLE DESCRIPTION : Sandy Gravel

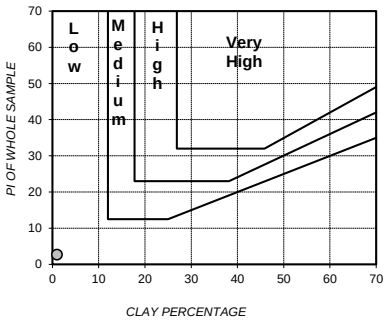
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**2.7**	**Specifc Gravity**	**2.35**

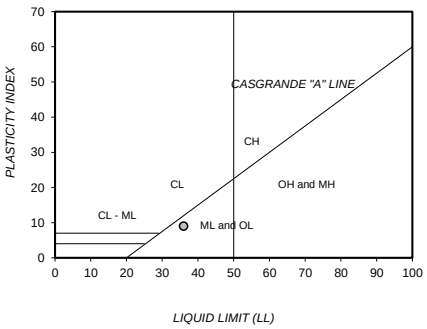
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	98
28.0	87
20.0	79
14.0	77
5.00	66
2.000	52
0.425	30
0.250	25
0.150	20
0.075	15
50 µm	2
5 µm	1
2 µm	1.0

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	43
0.425 - 0.250	9
0.250 - 0.150	11
0.150 - 0.075	9
< 0.075	29

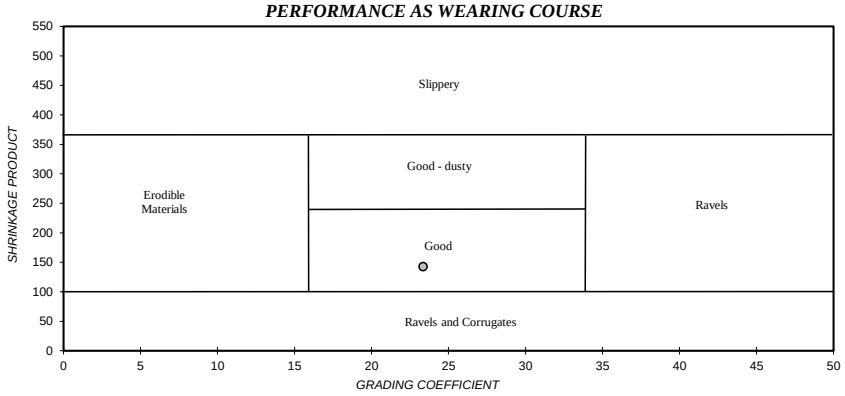
Effective size	0.066
Uniformity Coefficient	55.4
Curvature Coefficient	0.8
Oversize Index	1.8
Shrinkage Product	142.6
Grading Coefficient	23.4
Grading modulus	2.03

Atter-berg Limits

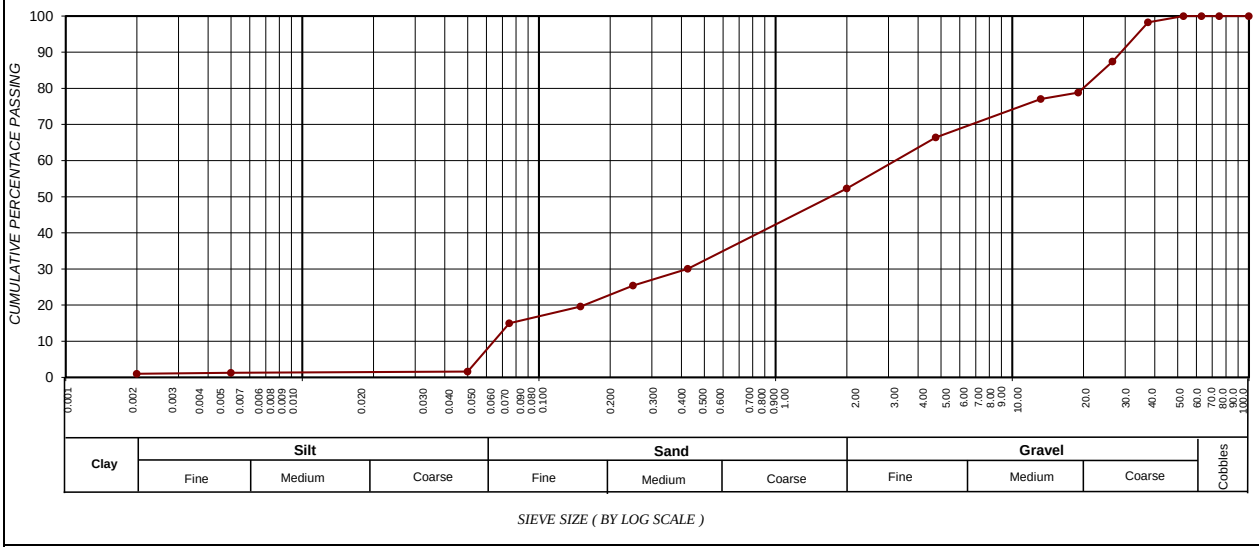
Liquid Limit	36
Plasticity Index	9
Linear Shrinkage	4.8
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-2-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
1.0	3.6	47.7	47.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 27.11.2024
POSITION : TP 28
LAYER : 0,60-2,10m
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Sandy Silt Gravel

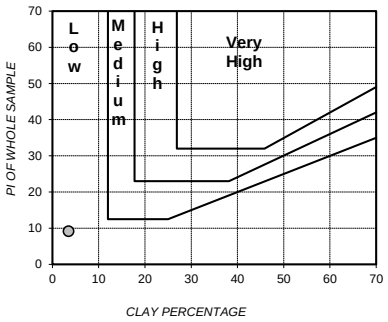
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**9.2**	**Specifc Gravity**	**2.35**

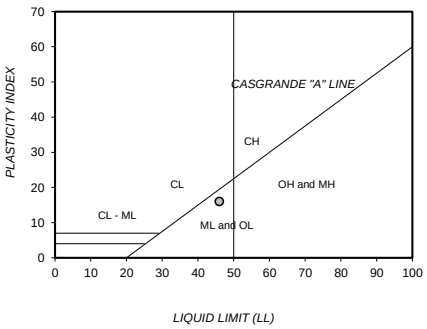
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	93
0.425	57
0.250	55
0.150	51
0.075	48
50 µm	6
5 µm	5
2 µm	3.5

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	38
0.425 - 0.250	3
0.250 - 0.150	4
0.150 - 0.075	4
< 0.075	51

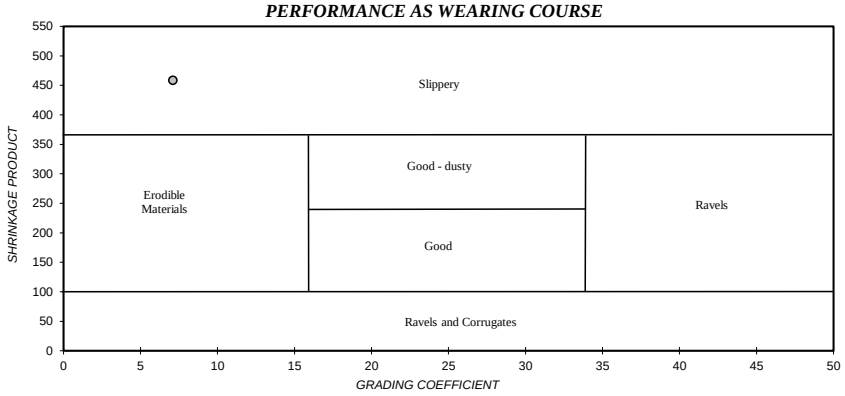
Effective size	0.053
Uniformity Coefficient	10.3
Curvature Coefficient	0.1
Oversize Index	0.0
Shrinkage Product	458.5
Grading Coefficient	7.1
Grading modulus	1.02

Atter-berg Limits

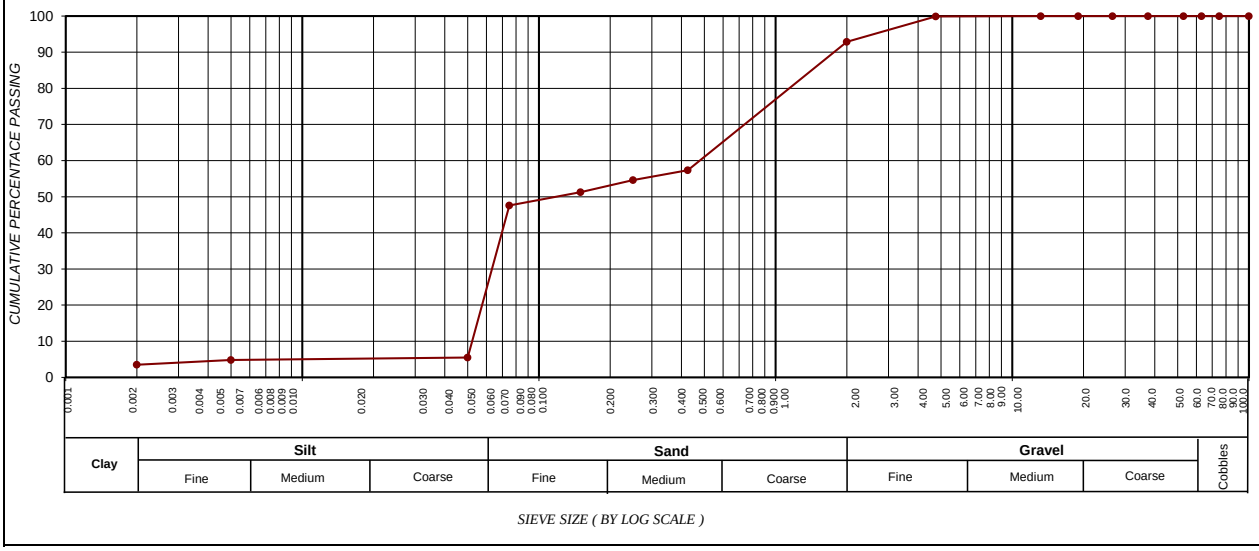
Liquid Limit	46
Plasticity Index	16
Linear Shrinkage	8.0
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-7-5 (5)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
3.5	12.8	76.5	7.1

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 29
LAYER : 0.70-3.00mm
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Gravelly Clay

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	97
50.0	94
37.5	89
28.0	84
20.0	78
14.0	78
5.00	68
2.000	58
0.425	26
0.250	20
0.150	14
0.075	9
50 µm	1
5 µm	1
2 µm	0.3

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	55
0.425 - 0.250	11
0.250 - 0.150	10
0.150 - 0.075	7
< 0.075	16

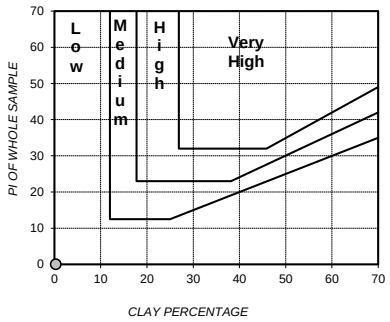
Effective size	0.086
Uniformity Coefficient	31.1
Curvature Coefficient	1.7
Oversize Index	11.0
Shrinkage Product	0
Grading Coefficient	17.5
Grading modulus	2.07

Atter-berg Limits

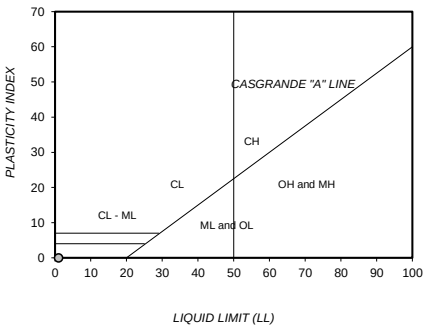
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

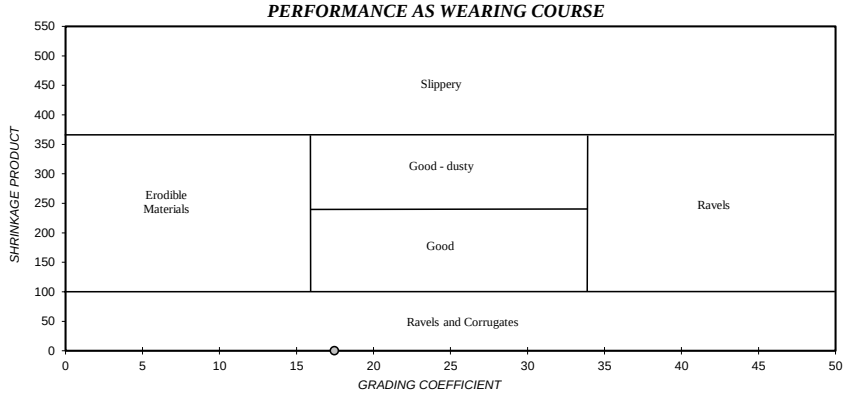
POTENTIAL EXPANSIVENES



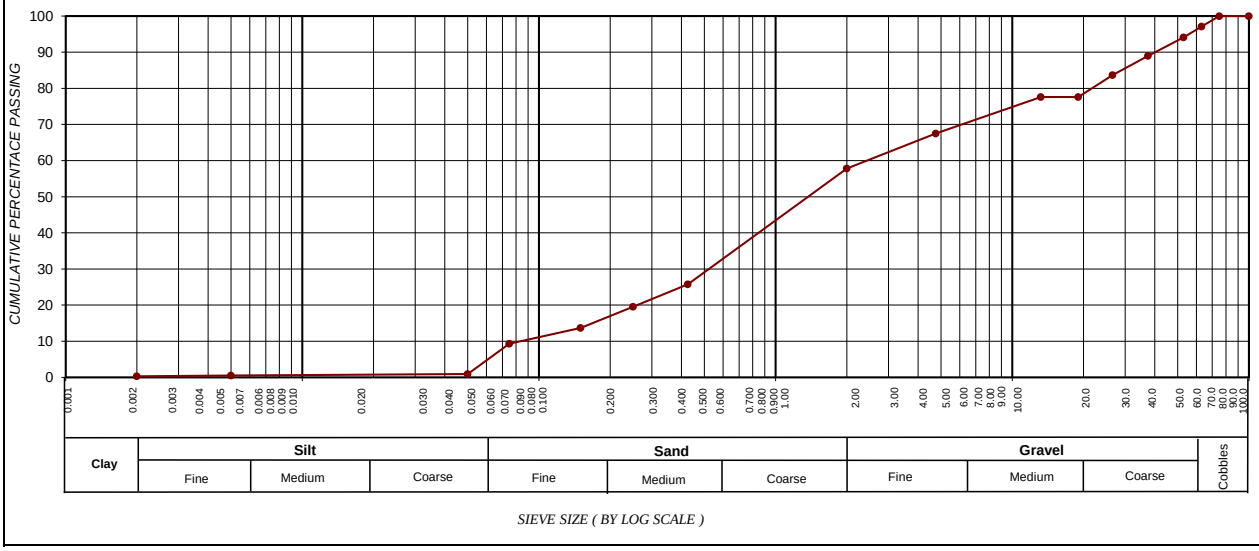
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.3	2.3	55.2	42.2

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 05.12.2024
POSITION : TP 29
LAYER : 0,90-300mm
SAMPLE No. : PV1
SAMPLE DESCRIPTION : Gravelly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**-**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	97
50.0	94
37.5	89
28.0	84
20.0	77
14.0	77
5.00	67
2.000	57
0.425	25
0.250	19
0.150	13
0.075	9
50 µm	1
5 µm	1
2 µm	0.3

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	57
0.425 - 0.250	10
0.250 - 0.150	10
0.150 - 0.075	7
< 0.075	16

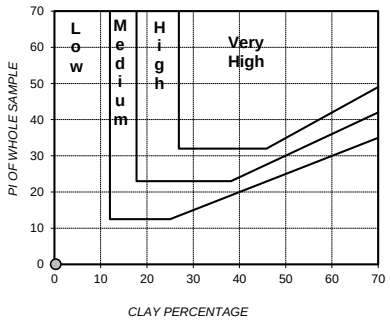
Effective size	0.093
Uniformity Coefficient	30.2
Curvature Coefficient	1.8
Oversize Index	11.1
Shrinkage Product	0
Grading Coefficient	17.6
Grading modulus	2.09

Atter-berg Limits

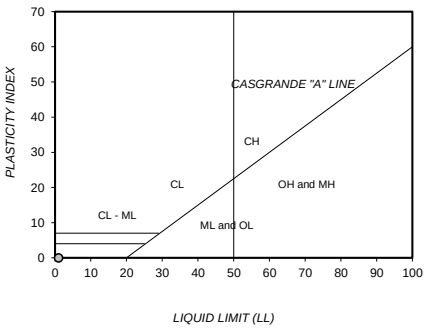
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-1-b (0)

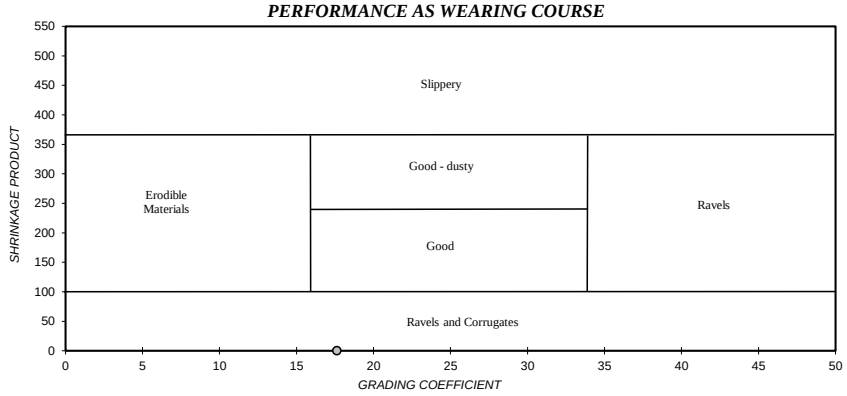
POTENTIAL EXPANSIVENES



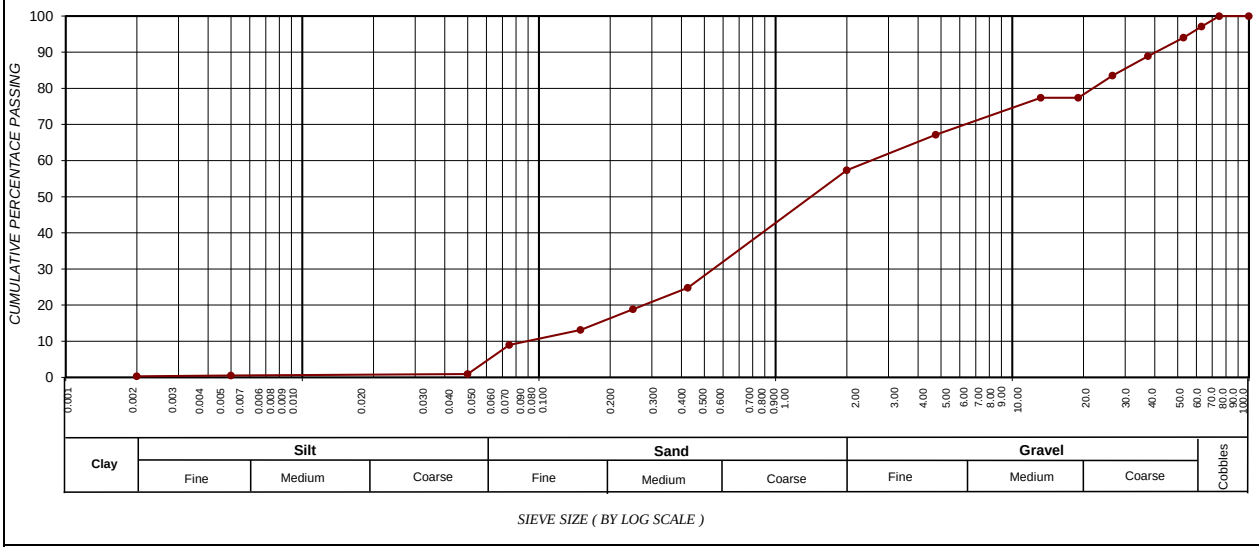
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.3	2.5	54.5	42.7

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 30.11.2024
POSITION : TP 30
LAYER : 0,30-1,50
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Gravelly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**10.5**	**Specifc Gravity**	**2.35**

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	94
2.000	86
0.425	70
0.250	67
0.150	60
0.075	53
50 µm	7
5 µm	6
2 µm	2.9

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	18
0.425 - 0.250	4
0.250 - 0.150	8
0.150 - 0.075	8
< 0.075	61

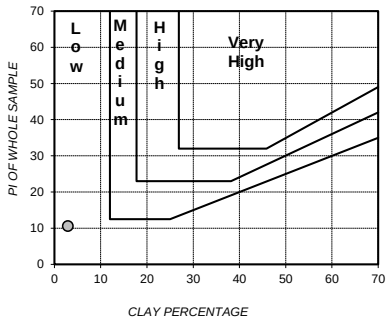
Effective size	0.052
Uniformity Coefficient	3.0
Curvature Coefficient	0.5
Oversize Index	0.0
Shrinkage Product	562.1
Grading Coefficient	13.4
Grading modulus	0.91

Atter-berg Limits

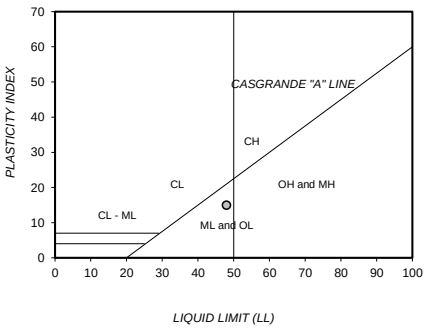
Liquid Limit	48
Plasticity Index	15
Linear Shrinkage	8.0
PI < 0.075	-

Unified Soil Classification	ML
U.S. Highway Classification	A-7-5 (6)

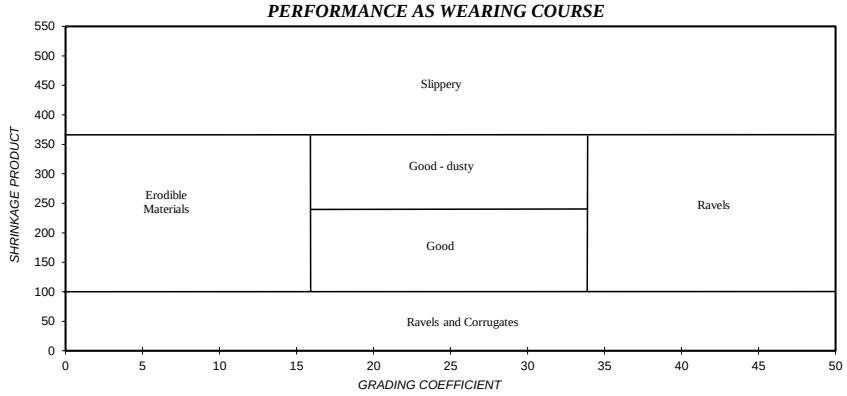
POTENTIAL EXPANSIVENES



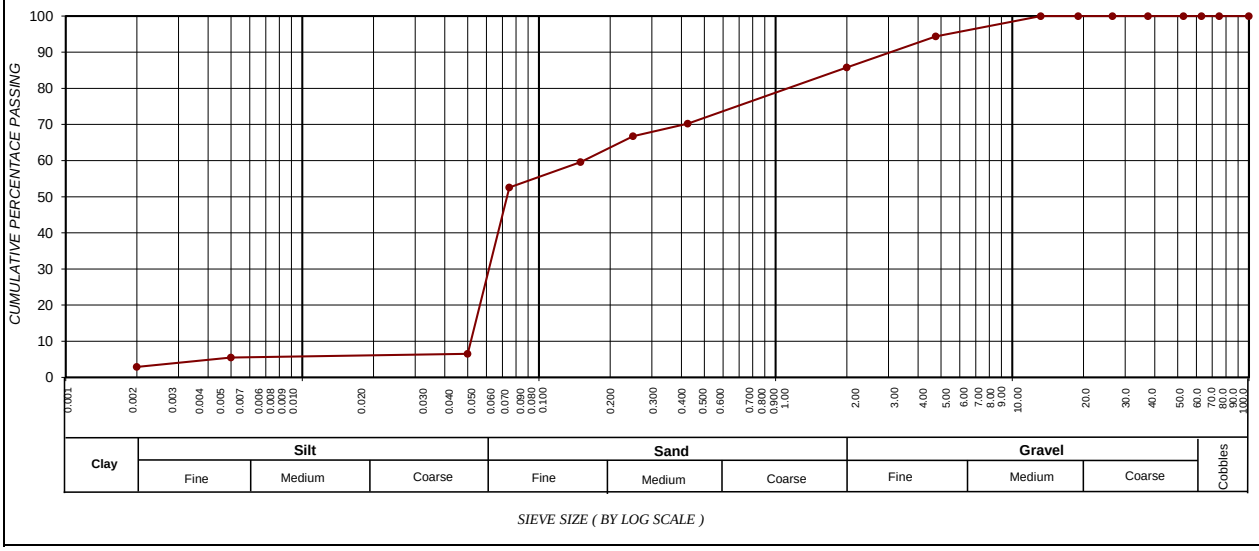
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
2.9	15.5	67.4	14.2

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 31
LAYER : 0.60-1.30mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Clayey Sand

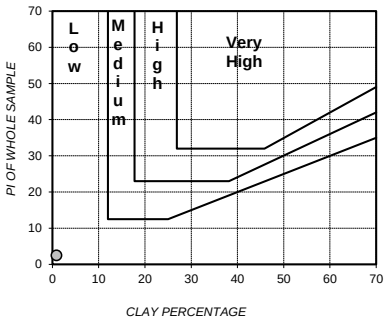
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**2.4**	**Specifc Gravity**	**2.35**

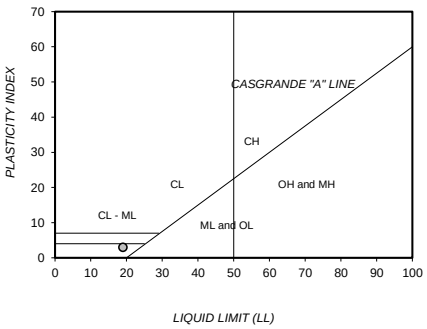
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	97
0.425	81
0.250	76
0.150	59
0.075	35
50 µm	3
5 µm	2
2 µm	0.9

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	16
0.425 - 0.250	5
0.250 - 0.150	17
0.150 - 0.075	25
< 0.075	36

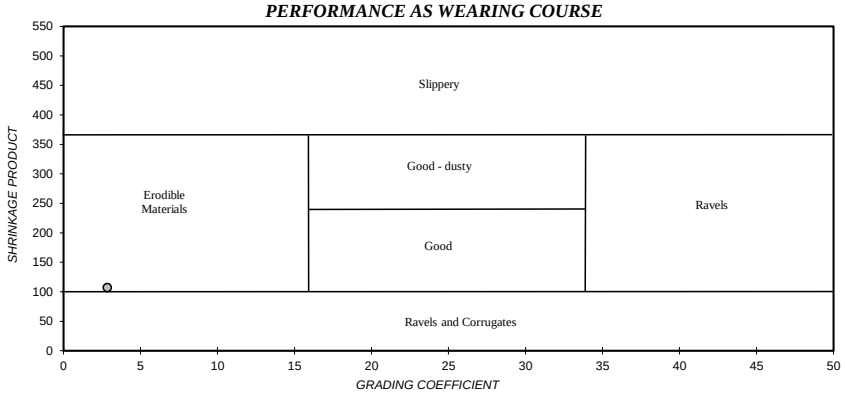
Effective size	0.055
Uniformity Coefficient	2.8
Curvature Coefficient	0.6
Oversize Index	0.0
Shrinkage Product	107.2
Grading Coefficient	2.8
Grading modulus	0.87

Atter-berg Limits

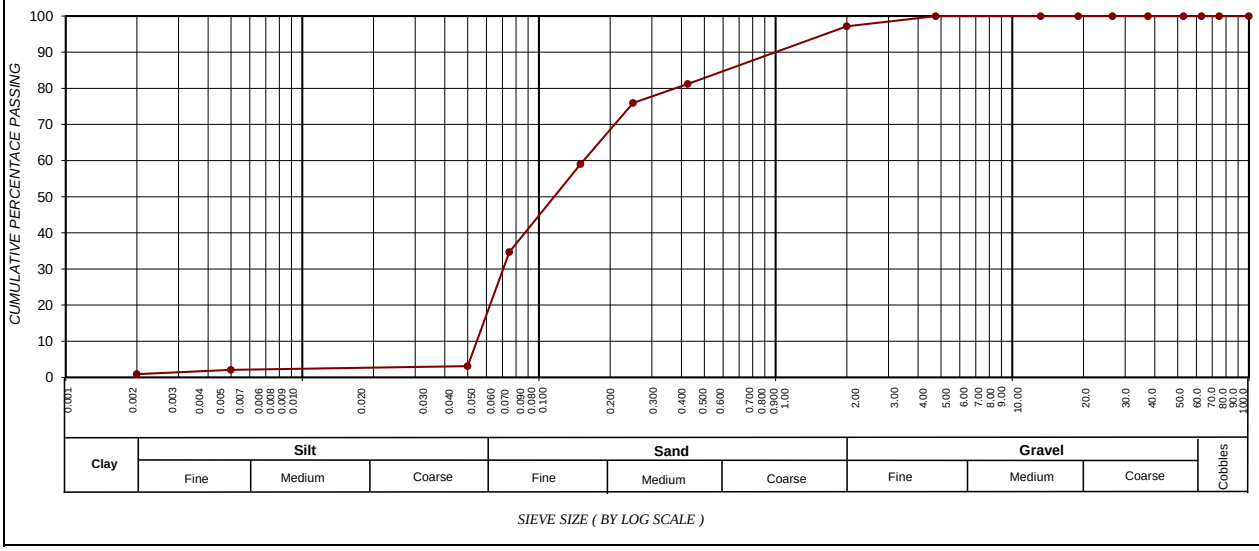
Liquid Limit	19
Plasticity Index	3
Linear Shrinkage	1.3
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-2-4 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.9	8.2	88.1	2.8

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 02.12.2024
POSITION : TP 31
LAYER : 0,15-0,70
SAMPLE No. : PV3
SAMPLE DESCRIPTION : Gravelly Sand

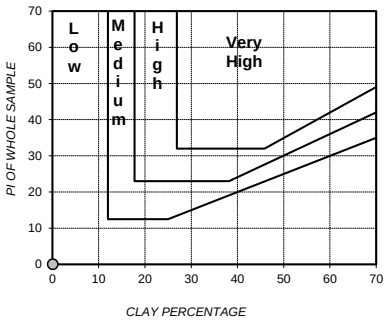
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	-	Specifc Gravity	2.35

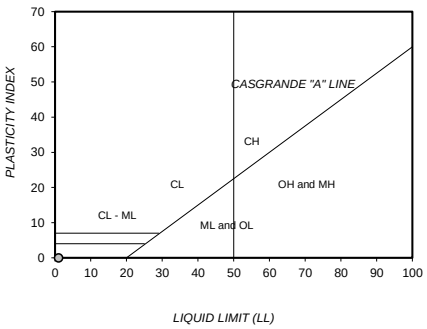
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	93
63.0	93
50.0	88
37.5	84
28.0	73
20.0	58
14.0	50
5.00	25
2.000	17
0.425	9
0.250	7
0.150	6
0.075	4
50 µm	0
5 µm	0
2 µm	0.1

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	47
0.425 - 0.250	10
0.250 - 0.150	9
0.150 - 0.075	8
< 0.075	26

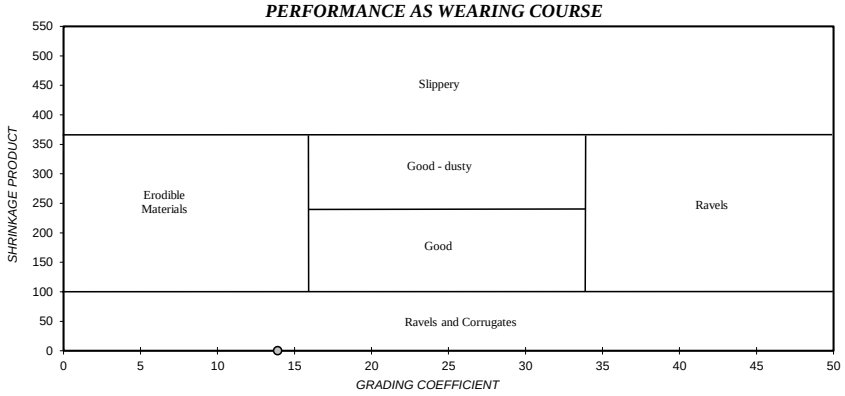
Effective size	0.622
Uniformity Coefficient	33.6
Curvature Coefficient	3.6
Oversize Index	15.7
Shrinkage Product	0
Grading Coefficient	13.9
Grading modulus	2.70

Atter-berg Limits

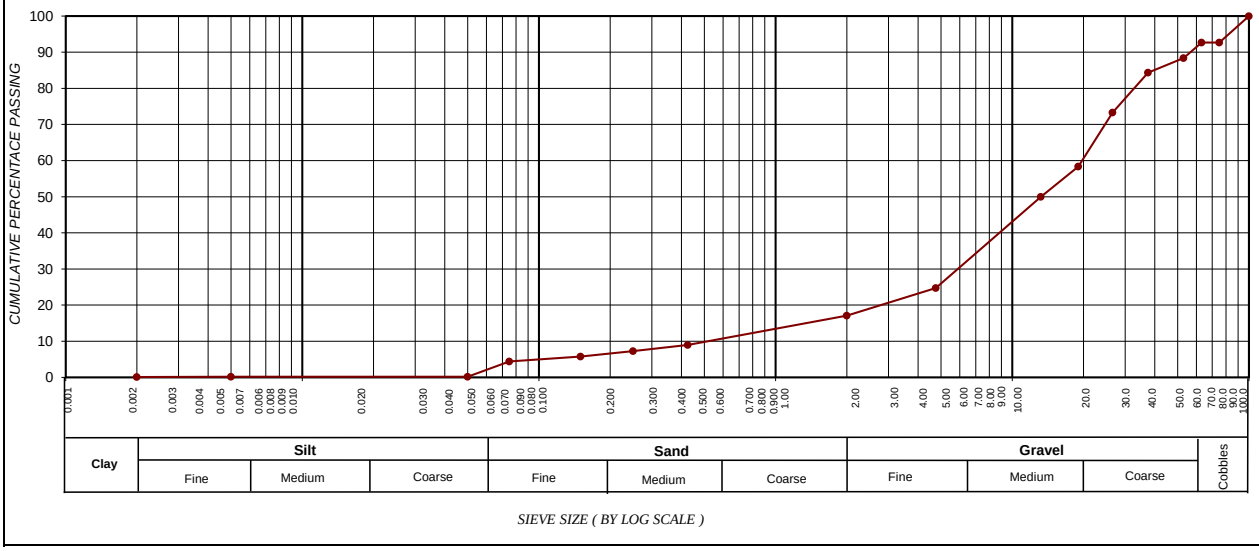
Liquid Limit	-
Plasticity Index	NP
Linear Shrinkage	-
PI < 0.075	-

Unified Soil Classification	GM
U.S. Highway Classification	A-1-a (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.1	0.9	16.1	82.9

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 27.11.2024
POSITION : TP 32
LAYER : 0,10-0,40mm
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Gravelly Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	#VALUE!	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	95
50.0	91
37.5	72
28.0	59
20.0	49
14.0	47
5.00	34
2.000	28
0.425	24
0.250	23
0.150	19
0.075	12
50 µm	1
5 µm	1
2 µm	0.5

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	13
0.425 - 0.250	4
0.250 - 0.150	14
0.150 - 0.075	25
< 0.075	44

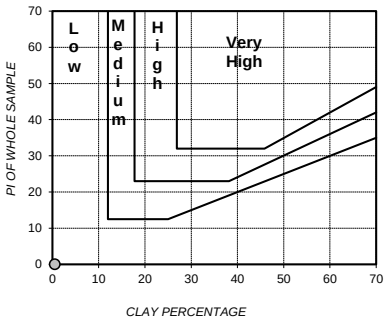
Effective size	0.070
Uniformity Coefficient	409.5
Curvature Coefficient	4.4
Oversize Index	28.2
Shrinkage Product	0.0
Grading Coefficient	10.6
Grading modulus	2.36

Atter-berg Limits

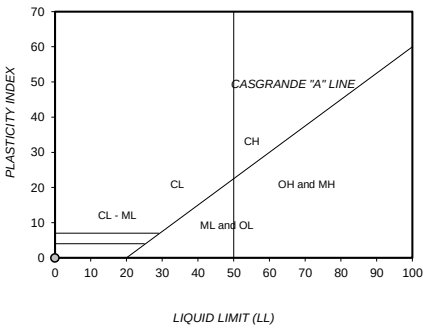
Liquid Limit	0
Plasticity Index	
Linear Shrinkage	0.0
PI < 0.075	-

Unified Soil Classification	GP
U.S. Highway Classification	#VALUE!

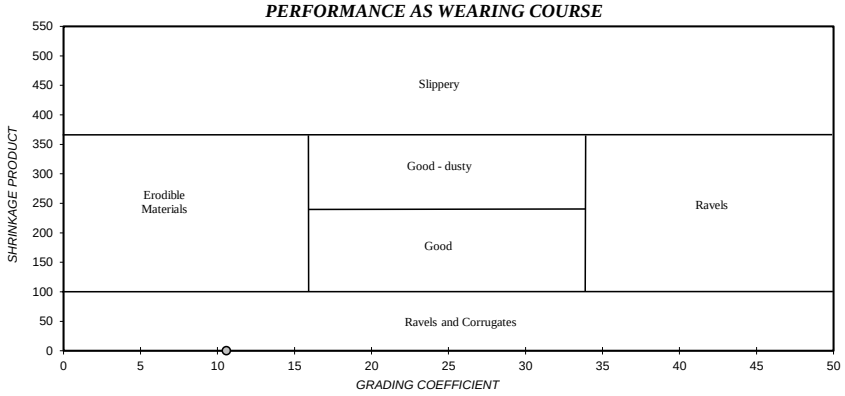
POTENTIAL EXPANSIVENES



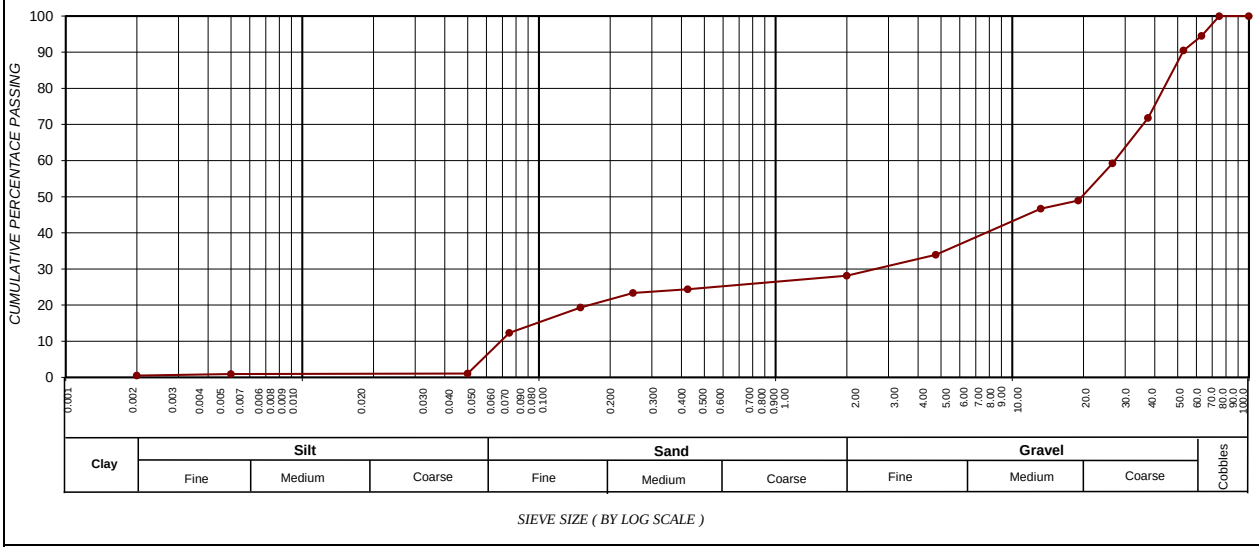
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.5	3.0	24.6	71.9

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 29.11.2024
POSITION : TP33
LAYER : 0.00-3.0mm
SAMPLE No. : PV5
SAMPLE DESCRIPTION : Calcrete Shale+ Gravel Sand

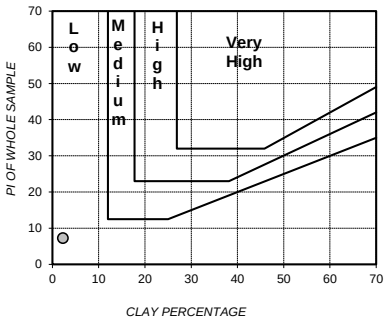
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	7.2	Specifc Gravity	2.35

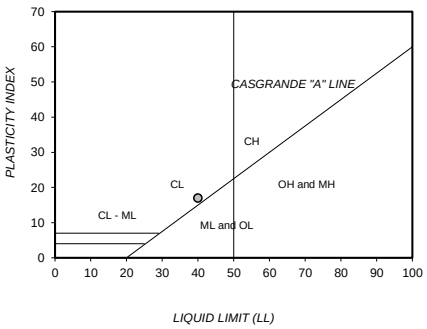
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	98
37.5	97
28.0	89
20.0	80
14.0	80
5.00	77
2.000	65
0.425	43
0.250	34
0.150	28
0.075	21
50 µm	5
5 µm	4
2 µm	2.3

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	34
0.425 - 0.250	13
0.250 - 0.150	10
0.150 - 0.075	11
< 0.075	32

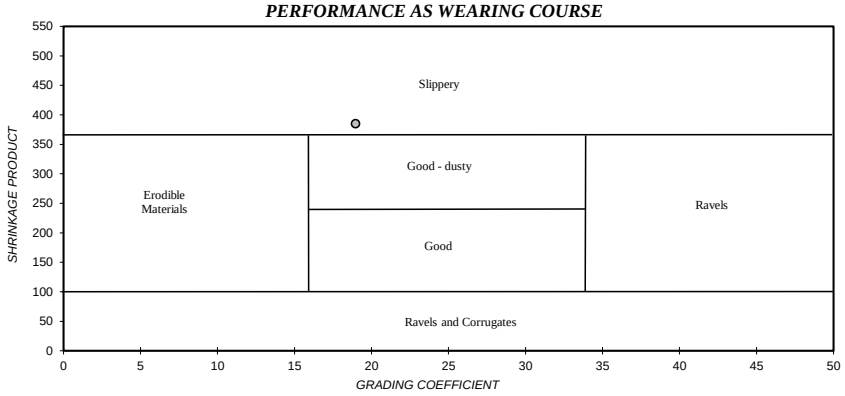
Effective size	0.058
Uniformity Coefficient	28.7
Curvature Coefficient	0.3
Oversize Index	3.1
Shrinkage Product	384.8
Grading Coefficient	19.0
Grading modulus	1.72

Atter-berg Limits

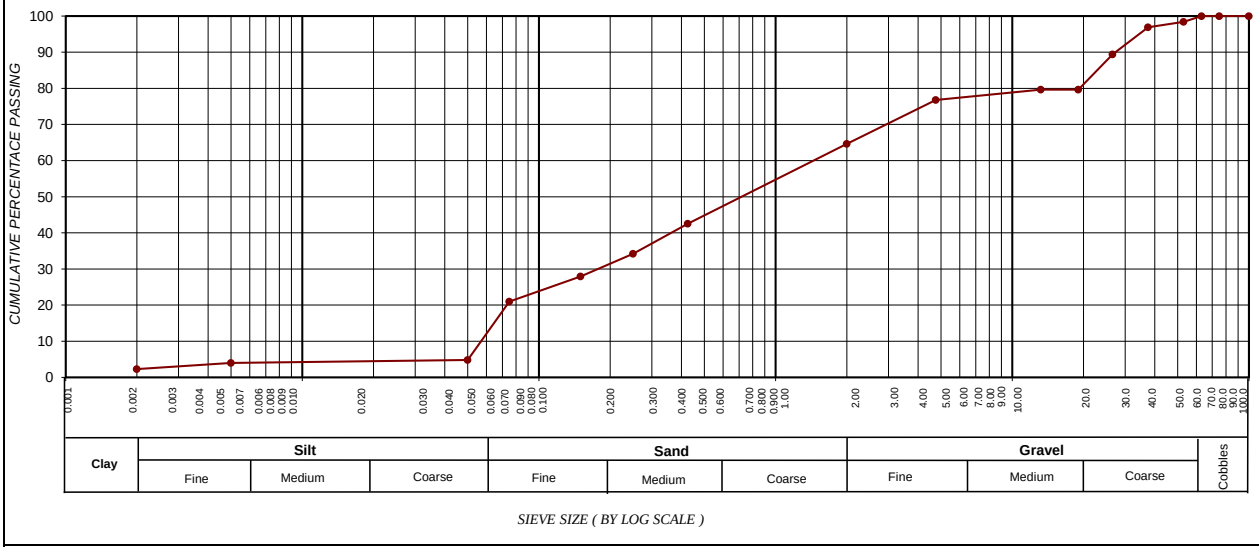
Liquid Limit	40
Plasticity Index	17
Linear Shrinkage	9.0
PI < 0.075	-

Unified Soil Classification	SC
U.S. Highway Classification	A-2-6 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
2.3	6.2	56.1	35.3

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP35
LAYER : 0.25-0.50mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Gravelly Sand

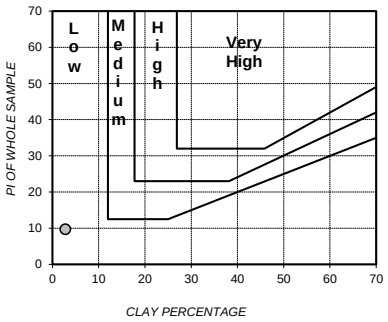
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**9.7**	**Specifc Gravity**	**2.35**

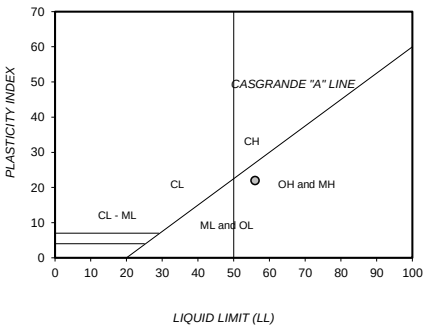
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	99
20.0	95
14.0	95
5.00	92
2.000	67
0.425	44
0.250	31
0.150	20
0.075	10
50 µm	4
5 µm	3
2 µm	2.8

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	35
0.425 - 0.250	20
0.250 - 0.150	16
0.150 - 0.075	14
< 0.075	15

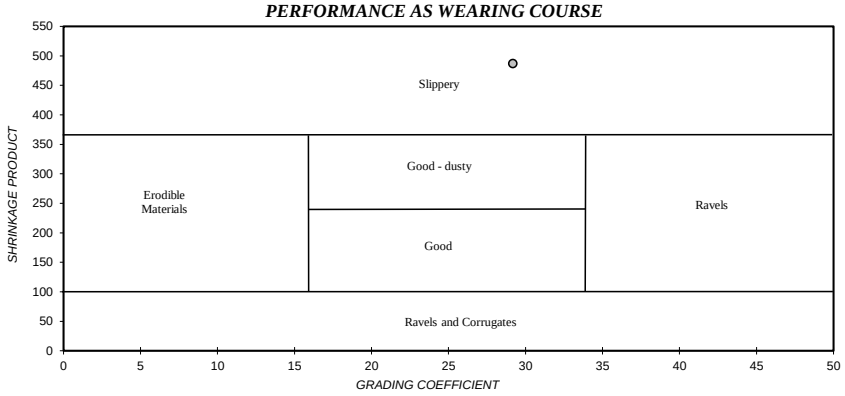
Effective size	0.074
Uniformity Coefficient	20.2
Curvature Coefficient	0.5
Oversize Index	0.0
Shrinkage Product	486.7
Grading Coefficient	29.2
Grading modulus	1.79

Atter-berg Limits

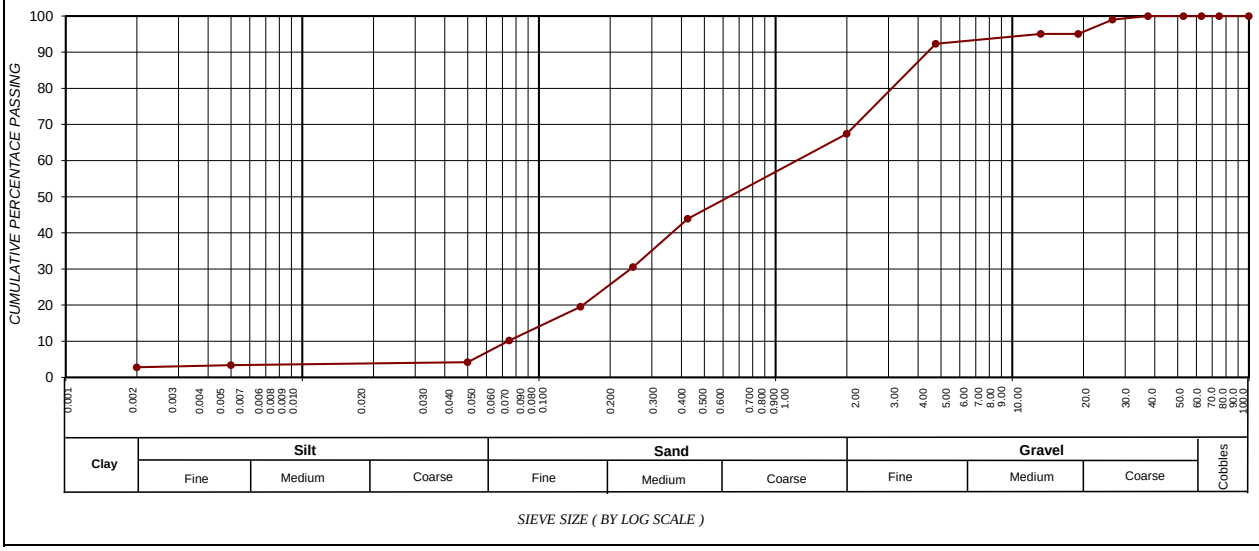
Liquid Limit	56
Plasticity Index	22
Linear Shrinkage	11.1
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-2-7 (0)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	**SILT (%) (0.002-0.060)**	**SAND (%) (0.060-2.00)**	**GRAVEL (%) (2.00-60.0)**
2.8	**2.3**	**62.3**	**32.6**

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Germiston, JHB, 1400

OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 36
LAYER : 0.00-0.20mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Silty Sand

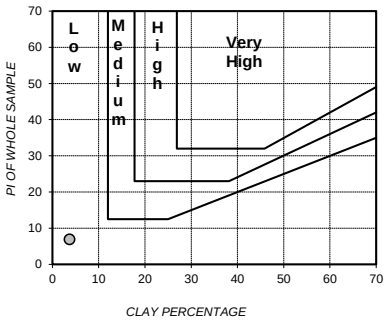
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	**6.9**	**Specifc Gravity**	**2.35**

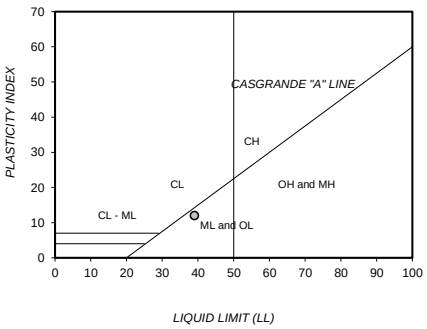
Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	92
20.0	82
14.0	82
5.00	80
2.000	69
0.425	57
0.250	54
0.150	51
0.075	47
50 µm	7
5 µm	5
2 µm	3.7

POTENTIAL EXPANSIVENES



PLASTICITY CHART



Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	17
0.425 - 0.250	4
0.250 - 0.150	5
0.150 - 0.075	6
< 0.075	68

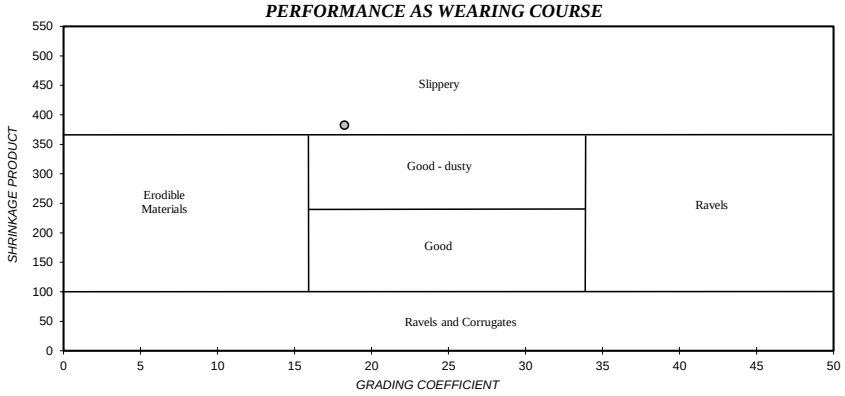
Effective size	0.052
Uniformity Coefficient	15.0
Curvature Coefficient	0.1
Oversize Index	0.0
Shrinkage Product	382.5
Grading Coefficient	18.2
Grading modulus	1.27

Atter-berg Limits

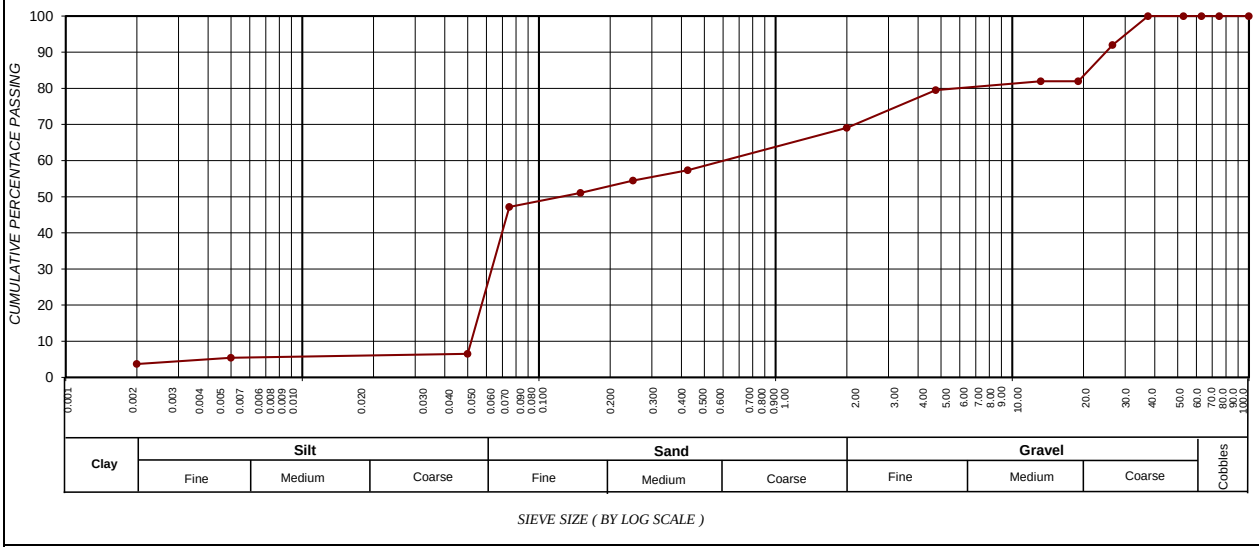
Liquid Limit	39
Plasticity Index	12
Linear Shrinkage	6.7
PI < 0.075	-

Unified Soil Classification	SM
U.S. Highway Classification	A-6 (3)

PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
3.7	12.8	52.5	30.9

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OUR REF : BLO01-RBFSME001-1-
CLIENT : SMEC SA (Pty) Ltd
PROJECT : Notsi Solar PV

DATE RECEIVED : 25.11.2024
POSITION : TP 38
LAYER : 0.00-0.50mm
SAMPLE No. : PV 5
SAMPLE DESCRIPTION : Clayey Sand

FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI	3.1	Specifc Gravity	2.35

Sieve analysis Cumulative percentage passing (mm)

100.0	100
75.0	100
63.0	100
50.0	100
37.5	100
28.0	100
20.0	100
14.0	100
5.00	100
2.000	95
0.425	79
0.250	72
0.150	55
0.075	24
50 µm	3
5 µm	2
2 µm	0.8

Soil Mortar Analysis % < 2.00mm

2.000 - 0.425	17
0.425 - 0.250	7
0.250 - 0.150	18
0.150 - 0.075	33
< 0.075	25

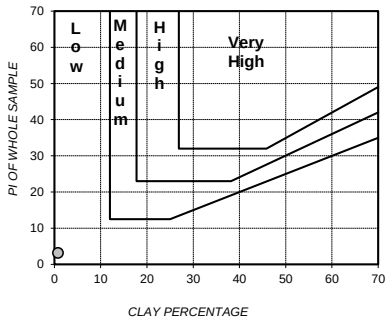
Effective size	0.059
Uniformity Coefficient	3.0
Curvature Coefficient	0.8
Oversize Index	0.0
Shrinkage Product	157.4
Grading Coefficient	4.6
Grading modulus	1.02

Atter-berg Limits

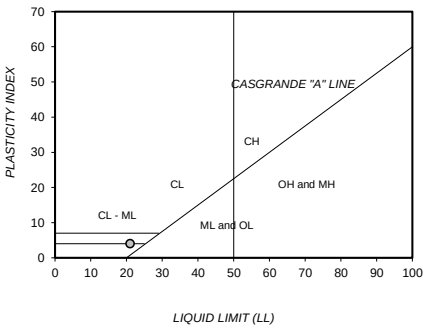
Liquid Limit	21
Plasticity Index	4
Linear Shrinkage	2.0
PI < 0.075	-

Unified Soil Classification	SM & SC
U.S. Highway Classification	A-2-4 (0)

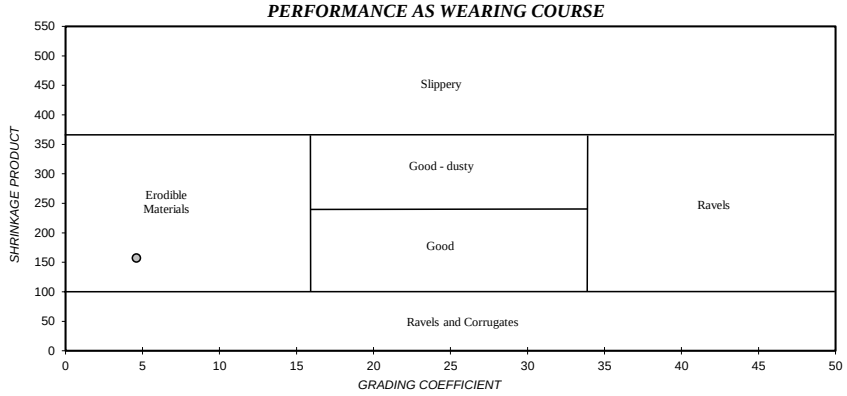
POTENTIAL EXPANSIVENES



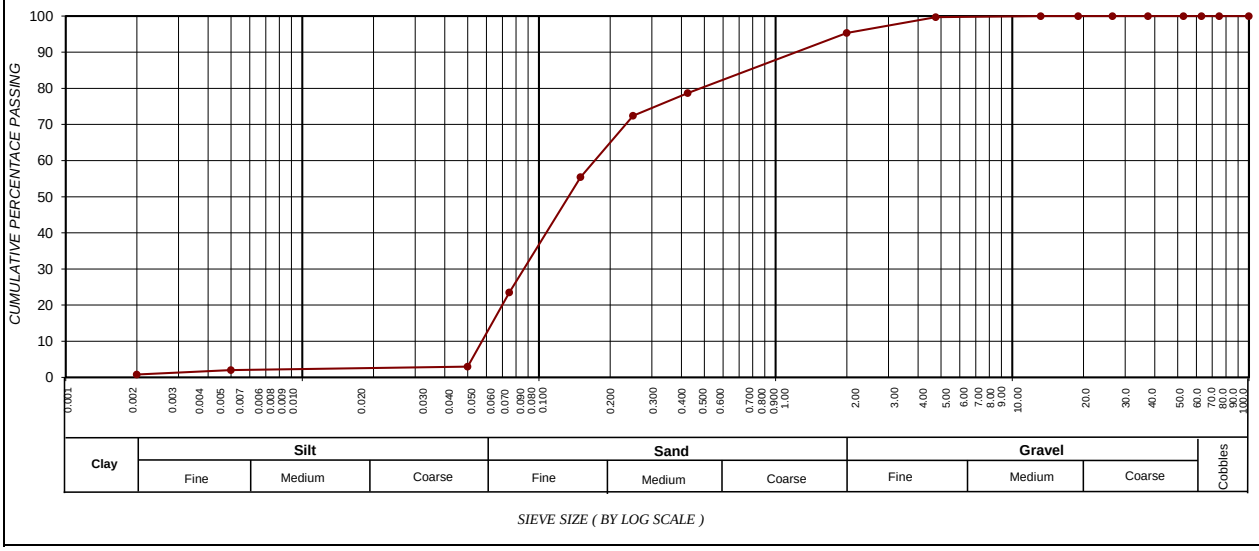
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



SIEVE SIZE (BY LOG SCALE)

CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
0.8	5.0	89.6	4.6

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Bloemfontein Branch
Rudolf Greyling St, Linquinda, Bloemfontein, Free State
bloemfontein@roadlab.co.za
060 727 8002

Roadlab Job Number RB7627
Client Smec Second Ave
Adress 23 Second Ave
Westdene
Bloemfontein

Project PV Solar
ATTENTION: Mr Ayanda Nxumalo
Test Report : **Moisture Content SANS GR20**

Sample delivered t Roadlab

Date Tested : 02-12-2024

Sample Number	Test Pit No	Depth (m)	Material Discription	Sample Origin	Moisture Content %	Remarks
MS 01	PV1-TP1	1.30 - 1.37	Rock	VSR Shale	N/S	
MS 02	PV1-TP2	0.40 - 1.30	Gravelly SAND	SR Dolerite	6,8	
MS 03	PV1-TP5	0.00 - 0.40	Clayey SAND	Aeolian SAND	5,9	
MS 04	PV1-TP5	0.40 - 0.70	Sandy GRAVEL	Residual Shale	6,4	
MS 05	PV1-TP7	0.00 - 0.40	Clayey SAND	Aeolian SAND	5,5	
MS 08	PV1-TP13	0.25 - 0.50	Silty SAND	Aeolian SAND	6,3	
MS 09	PV1-TP13	1.10 - 3.10	Gravelly SAND	Weakly Cemented Calcrete	6,1	
MS 12	PV1-TP22	0.20 - 0.35	Silty SAND	Aeolian SAND	4,1	
MS 13	PV1-TP29	0.90 - 3.00	Gravelly SAND	VSR Dolerite	5,5	
MS 14	PV1-TP33	0.70 - 3.00	Sandy GRAVEL	VSR Shale	5,1	

4,8

Remarks :

The samples were subjected to analysis according to SANS GR 20

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060 727 8002

Roadlab : Job Number RB7627
Client : Smec South Africa (Pty) Ltd
Adress : 23 Second Ave
Westdene
Bloemfontein

Project name : PV Solar
ATTENTION: Mr Ayanda Nxumalo
Test Report : **Moisture Content SANS GR20**

Sample delivered : Roadlab Bloemfotein

Date Tested : 20-12-2024

Sample Number	Test Pit No	Depth (m) (°C)	Material Discription	Sample Origin	Moisture Content %	Remarks
MS 15	PV2-TP02	1.40 - 3.10	Gravelly SAND	Weakly Cemented Calcrete	5,5	
MS 19	PV2 TP09	1.90 - 3.10	Sandy GRAVEL	VSR Shale	6,2	
MS 21	PV2 TP13	0.00 - 0.40	Silty SAND	Aeolian SAND	5,5	
MS 22	PV2 TP15	0.10 - 0.20	Rock	Strongly Cemented Calcrete	6,6	
MS 23	PV2 TP19	0.90 - 1.50	Sandy GRAVEL	Moderately Cemented Calcrete	5,8	

Remarks :

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Roadlab : Job Number RB7627
Client : Smec South Africa (Pty) Ltd
Adress : 23 Second Ave
Westdene
Bloemfontein

Project name : OHL & Substation
ATTENTION: Mr Ayanda Nxumalo
Test Report : **Moisture Content SANS GR20**

Sample delivered : Roadlab Bloemfotein

Date Tested : 20-12-2024

Sample Number	Test Pit No	Depth (m) (°C)	Material Discription	Sample Origin	Moisture Content %	Remarks
MS 29	PV3 TP1	0.50 - 1.10	Clayey SAND	Aeolian SAND	5,1	
MS 30	PV3 TP2	0.90 - 2.40	Sandy CLAY	Residual Shale	4,3	
MS 32	PV3 TP3	1.10 - 1.70	Sandy silty CLAY	Residual Shale	5,8	
MS 33	PV3 TP3	2.40 - 3.10	Clayey GRAVEL	Residual Shale	5,6	
MS 35	PV3 TP5	1.30 - 1.50	Sandy silty CLAY	Residual Shale	5,1	
MS 36	PV3 TP9	2.30 - 3.10	Sandy GRAVEL	Residual Shale	4,9	
MS 37	PV3 TP13	0.30 - 1.20	Gravelly SAND	Strongly Cemented Calcrete	3,9	
MS 38	PV3 TP13	1.20 - 2.30	Sandy GRAVEL	VSR Dolerite	4,1	
MS 40	PV3 TP15	0.30 - 0.80	Sandy GRAVEL	VSR Dolerite	3,9	
MS 41	PV3 TP17	0.30 - 1.40	Sandy GRAVEL	Residual Shale	4,3	
MS 43	PV3 TP18	1.50 - 3.10	Gravelly SAND	VSR Dolerite	4,7	
MS 44	PV3 TP20	0.20 - 0.80	Clayey gravelly SAND	Weakly Cemented Calcrete	3,9	
MS 46	PV3 TP21	1.40 - 3.10	Sandy GRAVEL	Residual Shale	4,6	
MS 47	PV3 TP23	0.00 - 0.40	Clayey SAND	Aeolian SAND	4,2	
MS 48	PV3 TP23	1.50 - 3.10	Clayey GRAVEL	Residual Shale	4,3	
MS 49	PV3 TP24	0.00 - 0.70	Clayey SAND	Aeolian SAND	3,8	
MS 52	PV3 TP29	0.70 - 3.00	Gravelly CLAY	Residual Shale	4,1	
MS 53	PV3 TP30	0.30 - 1.50	Gravelly SAND	Strongly Cemented Calcrete	4,4	
MS 57	PV3 TP37	0.50 - 1.10	Gravelly SAND		3,9	

Remarks :
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Attention : #REF!
RE : Moisture Content SANS GR20
Order No :
Compiled By: Linda Vorster
Date Tested: #REF!

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060 727 8002

Roadlab : Job Number RB7627
Client : Smec South Africa (Pty) Ltd
Adress : 23 Second Ave
Westdene
Bloemfontein

Project name : PV Solar
ATTENTION: Mr Ayanda Nxumalo
Test Report : **Moisture Content SANS GR20**

Sample delivered : Roadlab Bloemfotein

Date Tested : 20-12-2024

Sample Number	Test Pit No	Depth (m) (°C)	Material Discription	Sample Origin	Moisture Content %	Remarks
MS 58	PV4 TP3	0.40 - 0.60	Clayey SAND	Aeolian SAND	4,1	
MS 59	PV4 TP3	1.20 - 1.40	Sandy CLAY	Residual Shale	4,6	
MS 63	PV4 TP7	0.50 - 1.40	Gravelly CLAY	Residual Shale	3,3	
MS 65	PV4 TP12	1.80 - 3.00	Gravelly CLAY	Residual Shale	3,9	
MS 67	PV4 TP19	0.40 - 3.10	Gravelly CLAY	Residual Shale	4,8	
MS 68	PV4 TP20	0.40 - 1.20	Clayey SAND	Aeolian SAND	3,9	
MS 69	PV4 TP21	0.40 - 2.40	Sandy GRAVEL	VSR Shale	3,7	

4,3

Remarks :

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Roadlab : Job Number RB7627
Client : Smec South Africa (Pty) Ltd
Adress : 23 Second Ave
Westdene
Bloemfontein

Project name : PV Solar
ATTENTION: Mr Ayanda Nxumalo
Test Report : **Moisture Content SANS GR20**

Sample delivered : Roadlab Bloemfotein

Date Tested : 20-12-2024

Sample Number	Test Pit No	Depth (m) (°C)	Material Discription	Sample Origin	Moisture Content %	Remarks
MS 70	PV5 TP2	0.40 - 1.20	Sandy GRAVEL	VSR Dolerite	4,3	
MS 71	PV5 TP3	0.60 - 3.10	Sandy GRAVEL	SR Shale	3,9	
MS 72	PV5 TP4	0.00 - 0.60	Silty SAND	Aeolian SAND	4,1	
MS 76	PV5 TP8	0.00 - 0.50	Clayey SAND	Aeolian SAND	3,6	
MS 77	PV5 TP8	0.80 - 1.80	Sandy GRAVEL	SR Dolerite	3,9	
MS 78	PV5 TP9	0.00 - 0.40	Clayey SAND	Aeolian SAND	3,7	
MS 80	PV5 TP10	0.00 - 0.30	Clayey SAND	Aeolian SAND	3,9	
MS 81	PV5 TP10	0.30 - 0.70	Gravelly SAND	VSR Dolerite	4,2	
MS 82	PV5 TP11	0.00 - 0.40	Silty SAND	Aeolian SAND	4,9	
MS 85	PV5 TP17	0.00 - 0.40	Clayey SAND	Aeolian SAND	5,1	
MS 86	PV5 TP17	0.40 - 0.60	Sandy GRAVEL	VSR Dolerite	4,7	
MS 87	PV5 TP19	0.50 - 0.90	Gravelly SAND	Weakly Cemented Calcrete	4,3	
MS 88	PV5 TP21	0.50 - 1.20	Clayey SAND	Aeolian SAND	3,8	
MS 89	PV5 TP23	0.00 - 0.30	Silty SAND	Aeolian SAND	3,9	
MS 90	PV5 TP23	0.30 - 0.80	Sandy GRAVEL	VSR Dolerite	4,1	

Remarks :

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060 727 8002

Roadlab : Job Number RB7627
Client : Smec South Africa (Pty) Ltd
Adress : 23 Second Ave
Westdene
Bloemfontein

Project name : PV Solar
ATTENTION: Mr Ayanda Nxumalo
Test Report : **Moisture Content SANS GR20**

Sample delivered : Roadlab Bloemfotein

Date Tested : 20-12-2024

Sample Number	Test Pit No	Depth (m) (°C)	Material Discription	Sample Origin	Moisture Content %	Remarks
MS 91	PV5 TP24	0.60 - 1.30	Sandy GRAVEL	SR Shale	5,5	
MS 92	PV5 TP28	0.60 - 2.10	Sandy GRAVEL	Residual Shale	4,1	
MS 94	PV5 TP31	0.00 - 0.60	Clayey SAND	Aeolian SAND	4,1	
MS 95	PV5 TP32	0.10 - 0.40	Sandy GRAVEL	Strongly Cemented Calcrete	3,8	
MS 96	PV5 TP33	0.00 - 0.30	Clayey SAND	Aeolian SAND	3,9	
MS 97	PV5 TP33	0.10 - 0.20	Clayey SAND	Aeolian SAND	4,2	
MS 99	PV5 TP35	0.90 - 0.97	Rock	SR Shale	4,4	
MS 100	PV5 TP36	0.00 - 0.20	Silty SAND	Aeolian SAND	4,2	
MS 101	PV5 TP37	0.40 - 0.70	Clayey GRAVEL	Residual Shale	3,9	
MS 102	PV5 TP38	0.00 - 0.50	Clayey SAND	Aeolian Sand	5,1	
MS 104	PV5 TP41	1.00 - 1.80	Sandy GRAVEL	Residual Shale	4,4	

4,1

x

x

x

Remarks :

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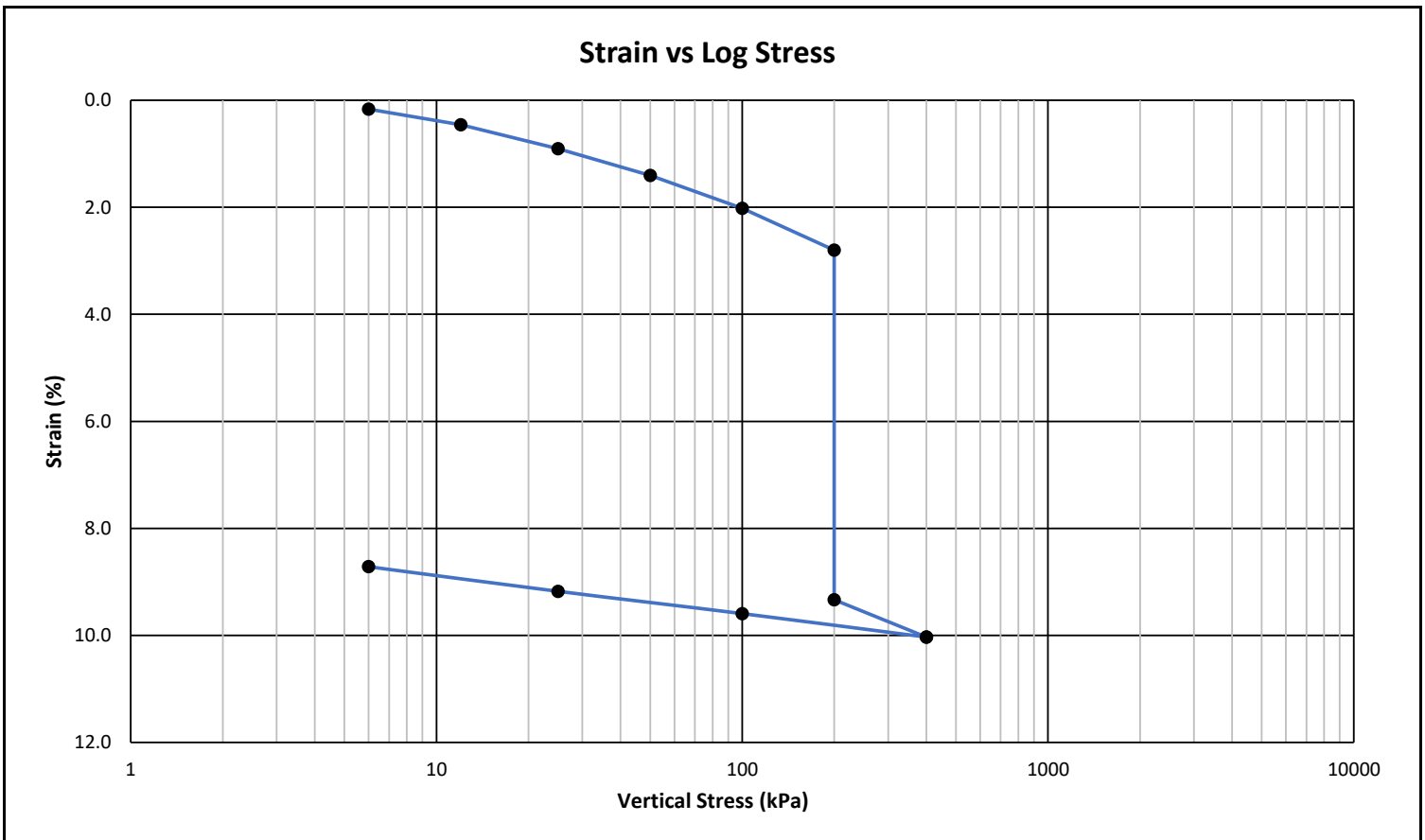
Unit 1, 13 Bloubokkie Street, Koedoespoort 0186
Roelof | 072 674 6343 | roelof@stlab.co.za
Gerrie | 082 309 4448 | gerrie@stlab.co.za
www.stlab.co.za

Client Name:	Wiltrade 32 (Pty) Ltd	**Job Number:**	WLT-919
Project Name:	PE310 : Notsi Solar PV	**Lab Number:**	WLT-919-2406
Sample:	PV1 - TP13	**Method:**	BS 1377 Part 5
Depth: (m)	0.25 - 0.50	**Date:**	27/03/2025

ONE DIMENSIONAL COLLAPSE POTENTIAL TEST

Sample Info		Unit	Initial	Test Remarks:
Test Specimen Height		mm	25.4	Undisturbed **Collapse Potential:** 6.53 %
Moisture Content	Initial	%	2.5	
	Final	%	21.4	
Dry Density		kg/m³	1458	
Void Ratio		-	0.817	
Degree of Saturation		%	8.0	
Relative Density (SG)		-	2.650	Assumed

Vertical Stress Applied:	kPa	6	12	25	50	100	200	200	400	100	25	6		
Load applied for:	Hrs	1	1	1	1	1	1	24	1	1	1	1		
Height after increment	mm	25.36	25.28	25.17	25.04	24.89	24.69	23.03	22.85	22.96	23.07	23.19		
Total Strain	%	0.17	0.46	0.91	1.40	2.02	2.80	9.33	10.03	9.59	9.18	8.72		
Void Ratio	-	0.814	0.809	0.801	0.792	0.781	0.766	0.648	0.635	0.643	0.651	0.659		
Mv (1/Mpa)	-	-	0.490	0.345	0.200	0.125	0.080	-	0.038	0.016	0.061	0.266		



Although everything possible is done to ensure testing is performed accurately, neither Specialised Testing Laboratory (Pty) Ltd nor any of its directors, managers, employees or contractors can be held liable for any damages whatsoever arising from any error made in performing any tests, nor from any conclusions drawn therefrom. Test results are to be published in full. Samples will be kept for 1 month after the submission of test results due to limited storage space, unless other arrangements are in place.

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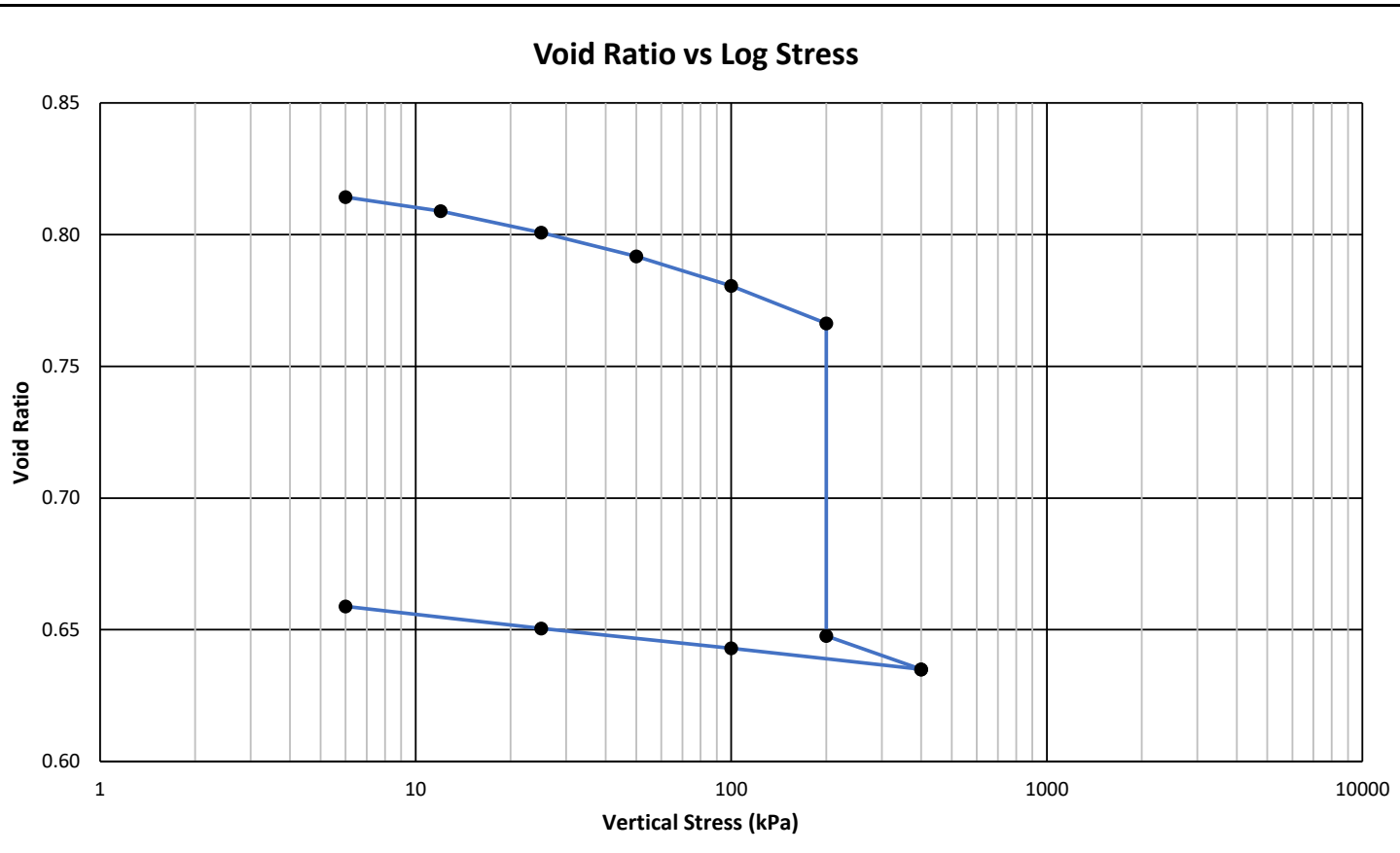
Client Name: Wiltrade 32 (Pty) Ltd
Project Name: PE310 : Notsi Solar PV
Sample: PV1 - TP13
Depth: (m) 0.25 - 0.50

Job Number: WLT-919
Lab Number: WLT-919-2406
Method: BS 1377 Part 5
Date: 27/03/2025

ONE DIMENSIONAL COLLAPSE POTENTIAL TEST

Sample Info		Unit	Initial	Test Remarks:		
Test Specimen Height		mm	25.4	Undisturbed	**Collapse Potential:**	6.53 %
Moisture Content	Initial	%	2.5			
	Final	%	21.4			
Dry Density		kg/m³	1458			
Void Ratio		-	0.817			
Degree of Saturation		%	8.0			
Relative Density (SG)		-	2.650	Assumed		

Vertical Stress Applied:	kPa	6	12	25	50	100	200	200	400	100	25	6		
Load applied for:	Hrs	1	1	1	1	1	1	24	1	1	1	1		
Height after increment	mm	25.36	25.28	25.17	25.04	24.89	24.69	23.03	22.85	22.96	23.07	23.19		
Total Strain	%	0.17	0.46	0.91	1.40	2.02	2.80	9.33	10.03	9.59	9.18	8.72		
Void Ratio	-	0.814	0.809	0.801	0.792	0.781	0.766	0.648	0.635	0.643	0.651	0.659		
Mv (1/Mpa)	-	-	0.490	0.345	0.200	0.125	0.080	-	0.038	0.016	0.061	0.266		



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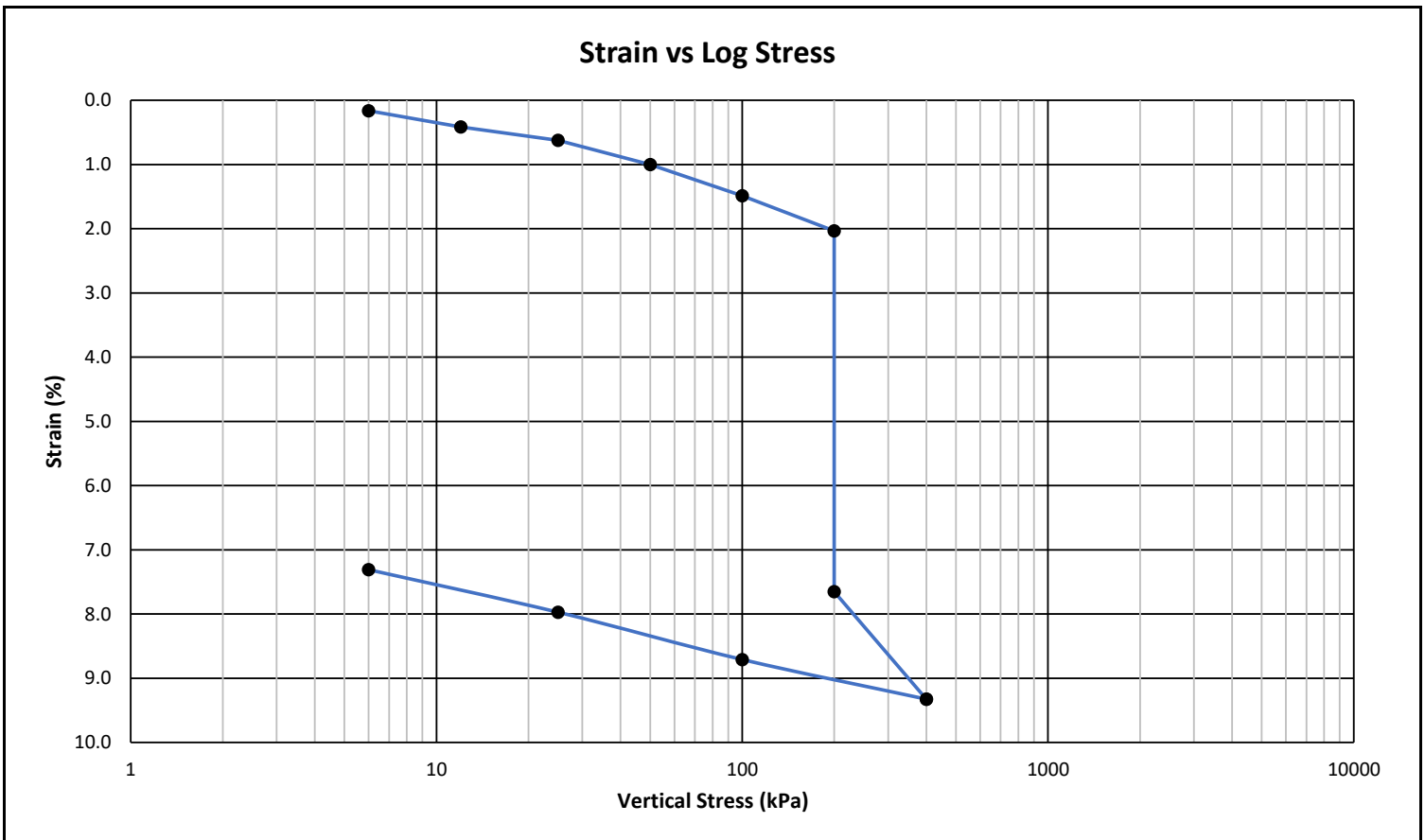
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Roelof | 072 674 6343 | roelof@stlab.co.za
Gerrie | 082 309 4448 | gerrie@stlab.co.za
www.stlab.co.za

Client Name:	Wiltrade 32 (Pty) Ltd	**Job Number:**	WLT-919
Project Name:	PE310 : Notsi Solar PV	**Lab Number:**	WLT-919-2407
Sample:	PV1 - TP22	**Method:**	BS 1377 Part 5
Depth: (m)	0.20 - 0.35	**Date:**	27/03/2025

ONE DIMENSIONAL COLLAPSE POTENTIAL TEST

Sample Info		Unit	Initial	Test Remarks:		
Test Specimen Height		mm	25.4	Undisturbed	**Collapse Potential:**	5.62 %
Moisture Content	Initial	%	6.3			
	Final	%	17.0			
Dry Density		kg/m³	1660			
Void Ratio		-	0.597			
Degree of Saturation		%	27.9			
Relative Density (SG)		-	2.650	Assumed		

Vertical Stress Applied:	kPa	6	12	25	50	100	200	200	400	100	25	6		
Load applied for:	Hrs	1	1	1	1	1	1	24	1	1	1	1		
Height after increment	mm	25.36	25.29	25.24	25.15	25.02	24.88	23.46	23.03	23.19	23.38	23.54		
Total Strain	%	0.16	0.42	0.63	1.00	1.49	2.03	7.65	9.33	8.71	7.97	7.31		
Void Ratio	-	0.594	0.590	0.587	0.581	0.573	0.564	0.475	0.448	0.458	0.469	0.480		
Mv (1/Mpa)	-	-	0.423	0.161	0.152	0.098	0.055	-	0.091	0.023	0.108	0.379		



Although everything possible is done to ensure testing is performed accurately, neither Specialised Testing Laboratory (Pty) Ltd nor any of its directors, managers, employees or contractors can be held liable for any damages whatsoever arising from any error made in performing any tests, nor from any conclusions drawn therefrom. Test results are to be published in full. Samples will be kept for 1 month after the submission of test results due to limited storage space, unless other arrangements are in place.

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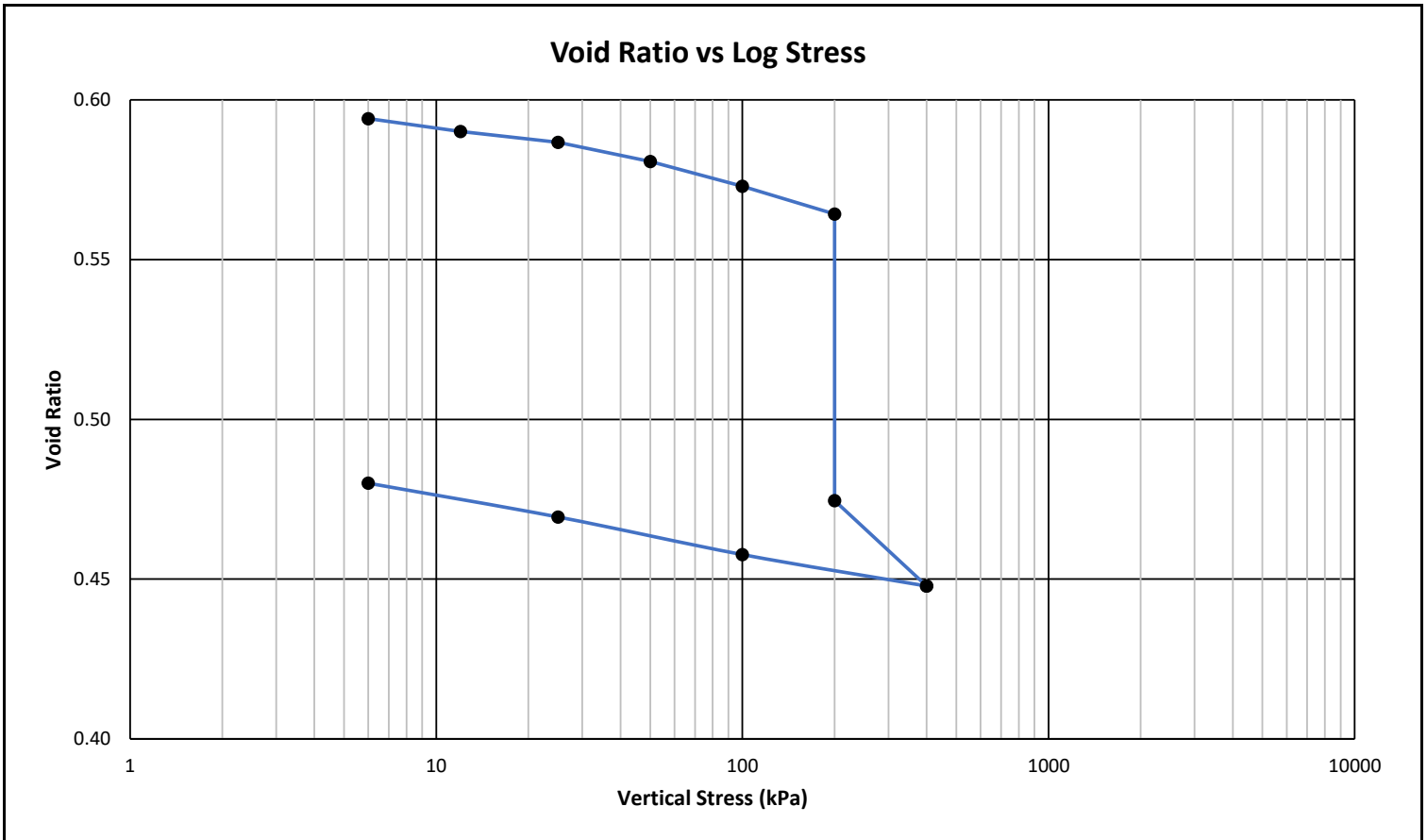
Client Name: Wiltrade 32 (Pty) Ltd
Project Name: PE310 : Notsi Solar PV
Sample: PV1 - TP22
Depth: (m) 0.20 - 0.35

Job Number: WLT-919
Lab Number: WLT-919-2407
Method: BS 1377 Part 5
Date: 27/03/2025

ONE DIMENSIONAL COLLAPSE POTENTIAL TEST

Sample Info		Unit	Initial	Test Remarks:		
Test Specimen Height		mm	25.4	Undisturbed	**Collapse Potential:**	5.62 %
Moisture Content	Initial	%	6.3			
	Final	%	17.0			
Dry Density		kg/m³	1660			
Void Ratio		-	0.597			
Degree of Saturation		%	27.9			
Relative Density (SG)		-	2.650	Assumed		

Vertical Stress Applied:	kPa	6	12	25	50	100	200	200	400	100	25	6		
Load applied for:	Hrs	1	1	1	1	1	1	24	1	1	1	1		
Height after increment	mm	25.36	25.29	25.24	25.15	25.02	24.88	23.46	23.03	23.19	23.38	23.54		
Total Strain	%	0.16	0.42	0.63	1.00	1.49	2.03	7.65	9.33	8.71	7.97	7.31		
Void Ratio	-	0.594	0.590	0.587	0.581	0.573	0.564	0.475	0.448	0.458	0.469	0.480		
Mv (1/Mpa)	-	-	0.423	0.161	0.152	0.098	0.055	-	0.091	0.023	0.108	0.379		



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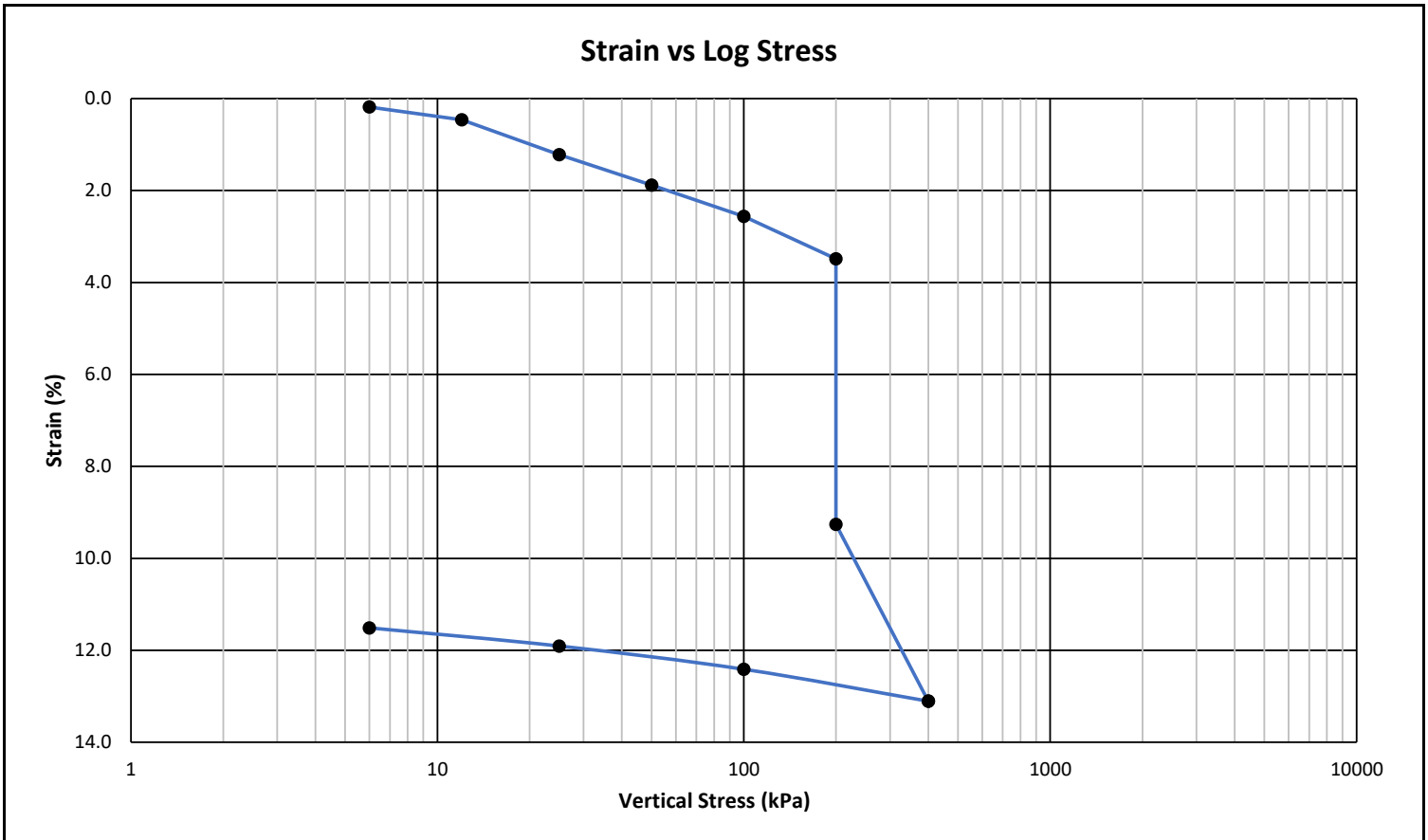
Client Name: Wiltrade 32 (Pty) Ltd
Project Name: PE310 : Notsi Solar PV
Sample: PV5 - TP33
Depth: (m) 0.10 - 0.20

Job Number: WLT-919
Lab Number: WLT-919-2410
Method: BS 1377 Part 5
Date: 27/03/2025

ONE DIMENSIONAL COLLAPSE POTENTIAL TEST

Sample Info		Unit	Initial	Test Remarks:		
Test Specimen Height		mm	25.4	Undisturbed	**Collapse Potential:**	5.78 %
Moisture Content	Initial	%	5.0			
	Final	%	15.6			
Dry Density		kg/m³	1626			
Void Ratio		-	0.630			
Degree of Saturation		%	20.9			
Relative Density (SG)		-	2.650	Assumed		

Vertical Stress Applied:	kPa	6	12	25	50	100	200	200	400	100	25	6		
Load applied for:	Hrs	1	1	1	1	1	1	24	1	1	1	1		
Height after increment	mm	25.35	25.28	25.09	24.92	24.75	24.51	23.05	22.07	22.25	22.38	22.48		
Total Strain	%	0.18	0.46	1.22	1.88	2.56	3.49	9.26	13.11	12.41	11.91	11.51		
Void Ratio	-	0.627	0.622	0.610	0.599	0.588	0.573	0.479	0.416	0.427	0.436	0.442		
Mv (1/Mpa)	-	-	0.461	0.589	0.268	0.139	0.095	-	0.212	0.027	0.077	0.236		



Although everything possible is done to ensure testing is performed accurately, neither Specialised Testing Laboratory (Pty) Ltd nor any of its directors, managers, employees or contractors can be held liable for any damages whatsoever arising from any error made in performing any tests, nor from any conclusions drawn therefrom. Test results are to be published in full. Samples will be kept for 1 month after the submission of test results due to limited storage space, unless other arrangements are in place.

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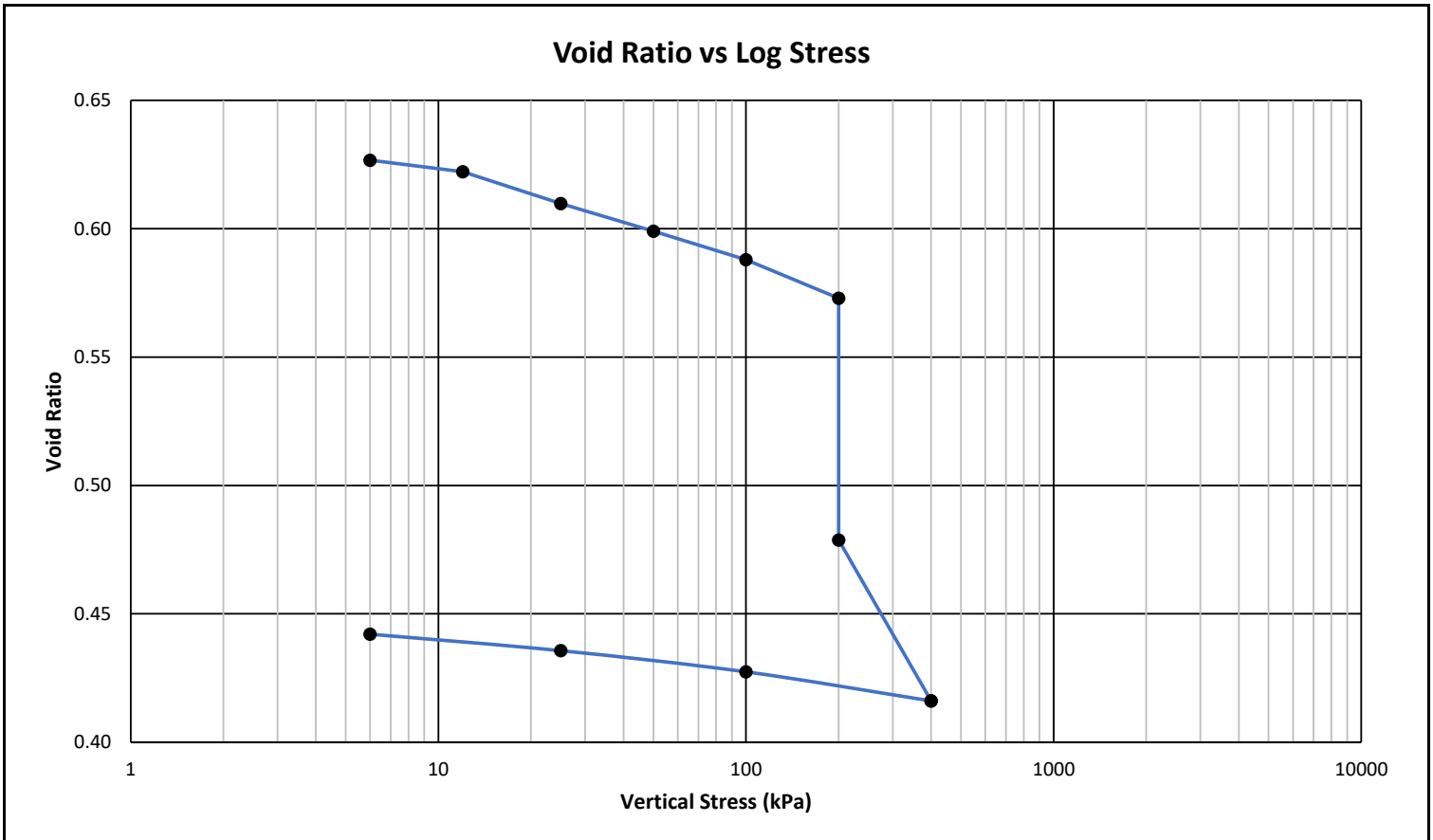
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Sample: PV5 - TP33
Depth: (m) 0.10 - 0.20

Job Number: WLT-919
Lab Number: WLT-919-2410
Method: BS 1377 Part 5
Date: 27/03/2025

ONE DIMENSIONAL COLLAPSE POTENTIAL TEST

Sample Info		Unit	Initial	Test Remarks:		
Test Specimen Height		mm	25.4	Undisturbed	**Collapse Potential:**	5.78 %
Moisture Content	Initial	%	5.0			
	Final	%	15.6			
Dry Density		kg/m³	1626			
Void Ratio		-	0.630			
Degree of Saturation		%	20.9			
Relative Density (SG)		-	2.650	Assumed		

Vertical Stress Applied:	kPa	6	12	25	50	100	200	200	400	100	25	6		
Load applied for:	Hrs	1	1	1	1	1	1	24	1	1	1	1		
Height after increment	mm	25.35	25.28	25.09	24.92	24.75	24.51	23.05	22.07	22.25	22.38	22.48		
Total Strain	%	0.18	0.46	1.22	1.88	2.56	3.49	9.26	13.11	12.41	11.91	11.51		
Void Ratio	-	0.627	0.622	0.610	0.599	0.588	0.573	0.479	0.416	0.427	0.436	0.442		
Mv (1/Mpa)	-	-	0.461	0.589	0.268	0.139	0.095	-	0.212	0.027	0.077	0.236		



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Telephone: +2712 – 349 – 1066
Facsimile: +2712 – 349 – 2064
Email: accounts@waterlab.co.za

T0391

CERTIFICATE OF ANALYSES
BRE TEST

Date received:	**2025-02-04**			**Date completed:**	**2025/02/17**
Project number:	**1000**	**Report number:**	**140526**	**Order number:**	**PO-RBF-0338**

Client name:	**Roadlab Bloemfontein (Pty) Ltd**	**Contact person:**	**Rita Nel**
Address:	**Rudolf, Greyling Street, Linquinda, Bloemfontein**	**Email:**	**rita@roadlab.co.za**
Telephone:	**051 447 7442**	**Cell:**	**082 570 2183**

Analyses	**Method Identification**	**Sample Identification** Project: NOTSI SOLAR PV					
		TP2 0.4-0.8		**TP5 0.4-1.7**		**TP7 0.0-0.5**	
Sample Number		**24-35262**		**24-35263**		**24-35264**	
Leachate used	WLAB075	**Distilled Water**		**Distilled Water**		**Distilled Water**	
Dry Mass Used (g)	---	**500**		**500**		**500**	
Volume Used (mℓ)	---	**1000**		**1000**		**1000**	
Paste pH	WLAB077	8,3		8,1		7,3	
Inorganic Anions		**mg/ℓ**	**mg/kg**	**mg/ℓ**	**mg/kg**	**mg/ℓ**	**mg/kg**
Chloride as Cl	WLAB046	<2	<4	340	680	2	4
Sulphate as SO_4	WLAB046	<2	<4	693	1386	5	10
Nitrate as N	WLAB046	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
Free & Saline Ammonia as N	WLAB046	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
Acid soluble Sulphate as SO_4*	---	163	815	657	3285	120	600
Total Ammonium Ion as NH_4*(calc)	WLAB068	<0.3	<0.6	<0.3	<0.6	<0.3	<0.6
Magnesium as Mg	WLAB015	3	6	80	160	1	2
Total Sulphur as S % [o]	---	<0.010		0,090		0,055	

Analyses	**Method Identification**	**Sample Identification** Project: NOTSI SOLAR PV					
		TP16 1.2-1.5		**TP18 0.9-3.2**		**TP24 1.1-2.2**	
Sample Number		**24-35265**		**24-35266**		**24-35267**	
Leachate used	WLAB075	**Distilled Water**		**Distilled Water**		**Distilled Water**	
Dry Mass Used (g)	---	**500**		**500**		**500**	
Volume Used (mℓ)	---	**1000**		**1000**		**1000**	
Paste pH	WLAB077	8,0		8,3		8,2	
Inorganic Anions		**mg/ℓ**	**mg/kg**	**mg/ℓ**	**mg/kg**	**mg/ℓ**	**mg/kg**
Chloride as Cl	WLAB046	26	52	50	100	7	14
Sulphate as SO_4	WLAB046	40	80	58	116	54	108
Nitrate as N	WLAB046	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
Free & Saline Ammonia as N	WLAB046	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
Acid soluble Sulphate as SO_4*	---	104	520	117	585	44	220
Total Ammonium Ion as NH_4*(calc)	WLAB068	<0.3	<0.6	<0.3	<0.6	<0.3	<0.6
Magnesium as Mg	WLAB015	10	20	4	8	7	14
Total Sulphur as S % [o]	---	0,059		0,020		0,064	

Please note:

- **The blank is subtracted from all leach results, except pH and Electrical Conductivity.**
- *** = Not SANAS Accredited**
- **Tests marked "Not SANAS Accredited" in this report are not included in the SANAS Schedule of Accreditation for this Laboratory.**
- **[o] = Analyses performed by an Outsourced Laboratory**
- **Results marked "Outsourced Test" in this report are not included in the SANAS Schedule of Accreditation for this Laboratory**

S. Laubscher
Technical Signatory

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CONVERSION OF RESULTS

Date received:	**2025-02-04**	**Date Completed:**	**2025-02-17**
Project number:	**1000**	**Report number:**	**140526**

Client name:	**Roadlab Bloemfontein (Pty) Ltd**	**Contact person:**	**Rita Nel**
Adress:	**Rudolf, Greyling Street, Linquinda, Bloemfontein**	**Email:**	**rita@roadlab.co.za**
		Cell:	**082 570 2183**
Telephone:	**051 447 7442**		

Sample number	Chloride as Cl in mg/l	Chloride as Cl mg/kg	Chloride as Cl mmol/kg
Det. Limit	**<2**	**<4**	**<0.113**
24-35262	<2	<4	<0.113
24-35263	340	680	19
24-35264	2	4	0,113
24-35265	26	52	1,47
24-35266	50	100	2,82
24-35267	7	14	0,395

Sample number	Water Soluble Sulphate As SO_4 in mg/l	Water Soluble Sulphate As SO_4 mg/kg	Water Soluble Sulphate As SO_4 mmol/kg
Det. Limit	**<2**	**<4**	**<0.042**
24-35262	<2	<4	<0.042
24-35263	693	1386	14
24-35264	5	10	0,104
24-35265	40	80	0,833
24-35266	58	116	1,21
24-35267	54	108	1,12

Sample number	Acid Soluble Sulphate As SO_4 in mg/l	Acid Soluble Sulphate As SO_4 mg/kg	Acid Soluble Sulphate As SO_4 mmol/kg
Det. Limit	**<5**	**<25**	**<0.104**
24-35262	163	815	3,39
24-35263	657	3285	14
24-35264	120	600	2,50
24-35265	104	520	2,17
24-35266	117	585	2,44
24-35267	44	220	0,916

Sample number	Total Alkalinity (mg/l)	Total Alkalinity (mg/kg)	Total Alkalinity (mmol/kg)
Det. Limit	**<5**	**<10**	**<0.100**
24-35262	36	72	0,719
24-35263	40	80	0,799
24-35264	12	24	0,240
24-35265	56	112	1,12
24-35266	88	176	1,76
24-35267	80	160	1,60

Sample number	Total Acidity (mg/l)	Total Acidity (mg/kg)	Total Acidity (mmol/kg)
Det. Limit	**<5**	**<10**	**<0.100**
24-35262	16	32	0,320
24-35263	36	72	0,719
24-35264	12	24	0,240
24-35265	36	72	0,719
24-35266	16	32	0,320
24-35267	<5	<10	<0.100

Sample number	Water Soluble Sulphide As S^{2-} in mg/l	Water Soluble Sulphide As S^{2-} mg/kg	Water Soluble Sulphide As S^{2-} mmol/kg
Det. Limit	**<0.2**	**<0.4**	**<0.012**
24-35262	6,0	12	0,374
24-35263	26	52	1,62
24-35264	4,7	9,4	0,293
24-35265	17	34	1,06
24-35266	12	24	0,748
24-35267	15	30	0,935

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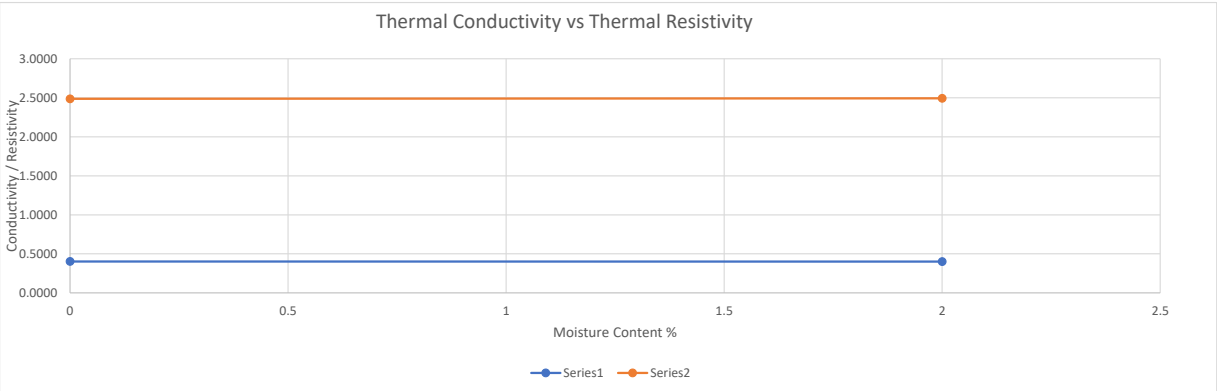
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JOB NO: YOUR REF: RG30312 DATE: 22/11/2024

Client	SMEC South Africa (Pty) Ltd	Device	1/01
Address	65 Riebeek Street	Oven	50c /107
Area	Cape Town	Balance	6Cc/155
Code	8001	Tester	Thembelihle
Project:	Notsi Solar - PV		
Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV1- TP05	0 - 600	27	Insitu	No	0.880	1.136
		27	Insitu		0.840	1.190
		27.1	Insitu		0.833	1.200



Kind Regards

Ruan Potgieter
Technical Signatory / Branch Manager

Remarks :

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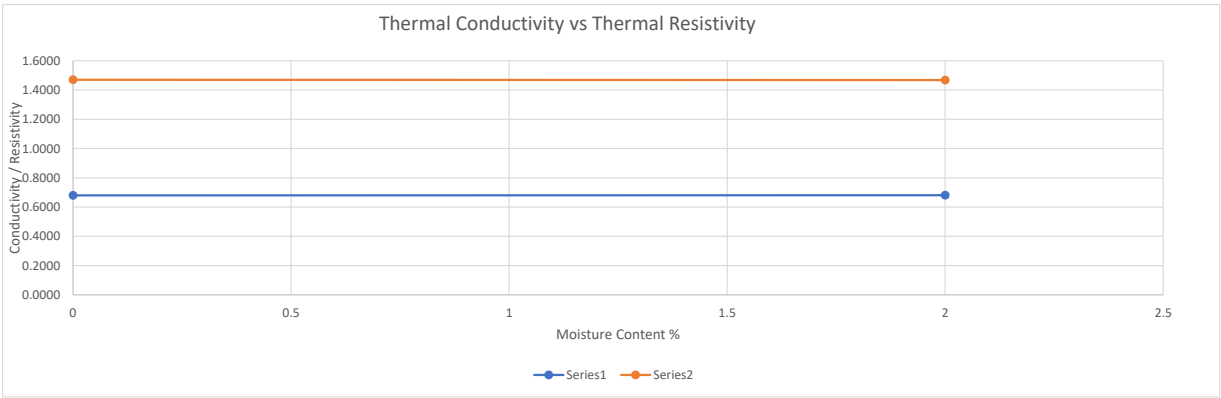
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Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV1 - TP33	0 - 900	24.2	Insitu	No	0.680	1.470
		24.2	Insitu		0.681	1.468
		24.3	Insitu		0.699	1.430



Kind Regards

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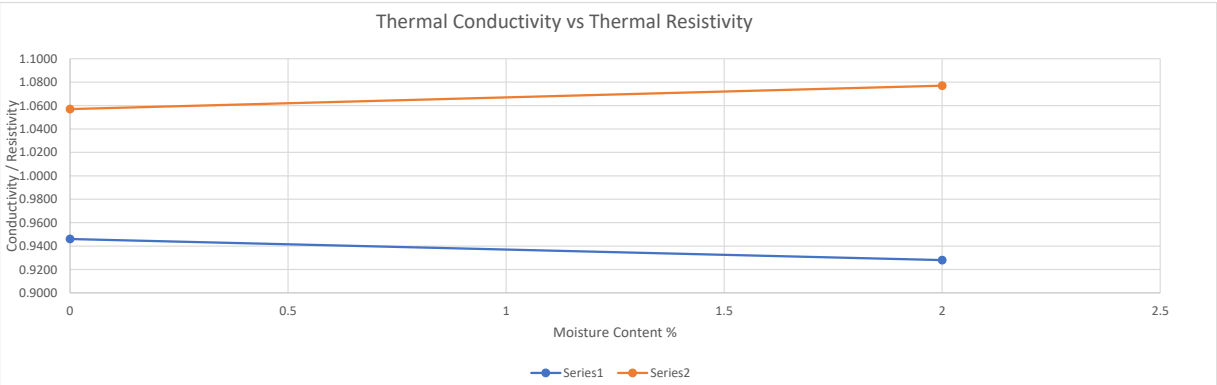
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Project:	Notsi Solar - PV		
Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV1 - TP20	0 - 500	26.8	Insitu	No	1.082	0.924
		26.9	Insitu		1.057	0.946
		27.1	Insitu		1.077	0.928



Kind Regards

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Technical Signatory / Branch Manager

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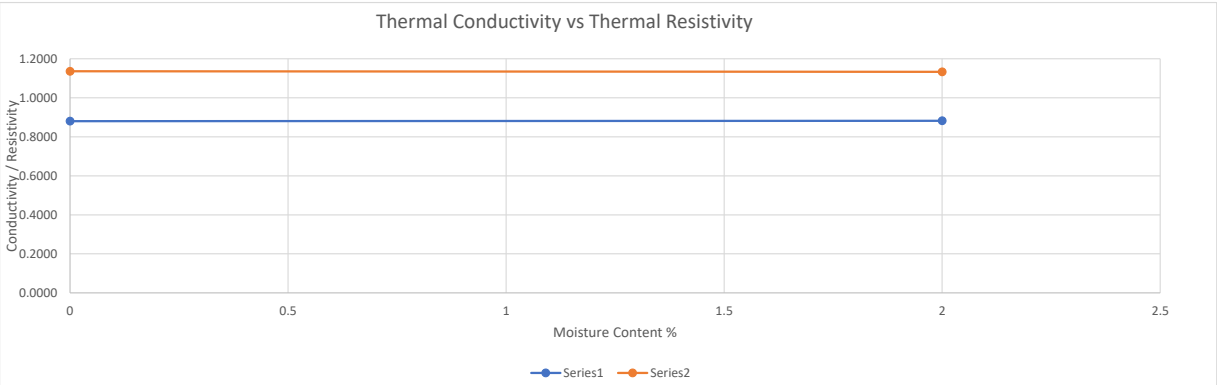
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Project:	Notsi Solar - PV		
Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV3 - TP1	0 - 700	24.4	Insitu	No	1.026	0.974
		24.5	Insitu		0.880	1.136
		24.5	Insitu		0.882	1.133



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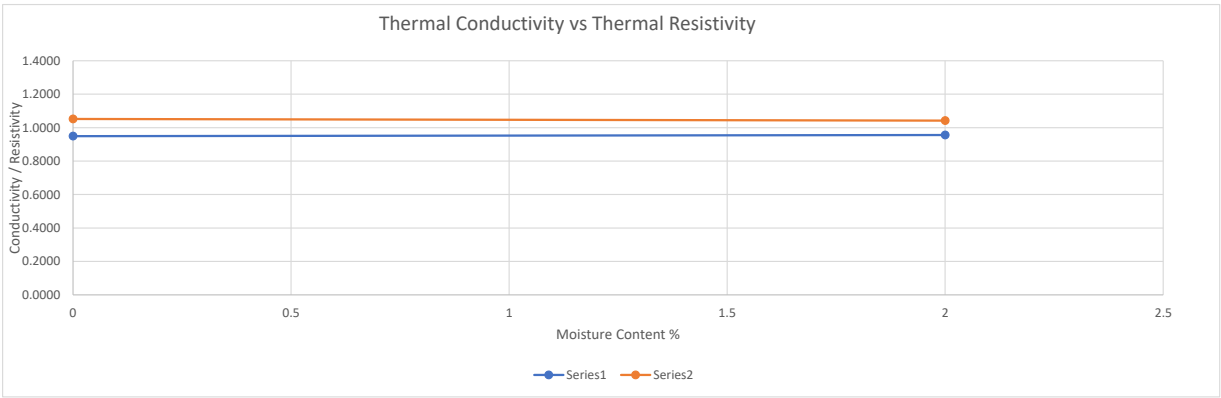
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Project:	Notsi Solar - PV		
Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV3 - TP4	0 - 800	23.6	Insitu	No	0.949	1.052
		23.7	Insitu		0.956	1.042
		23.7	Insitu		0.825	1.210



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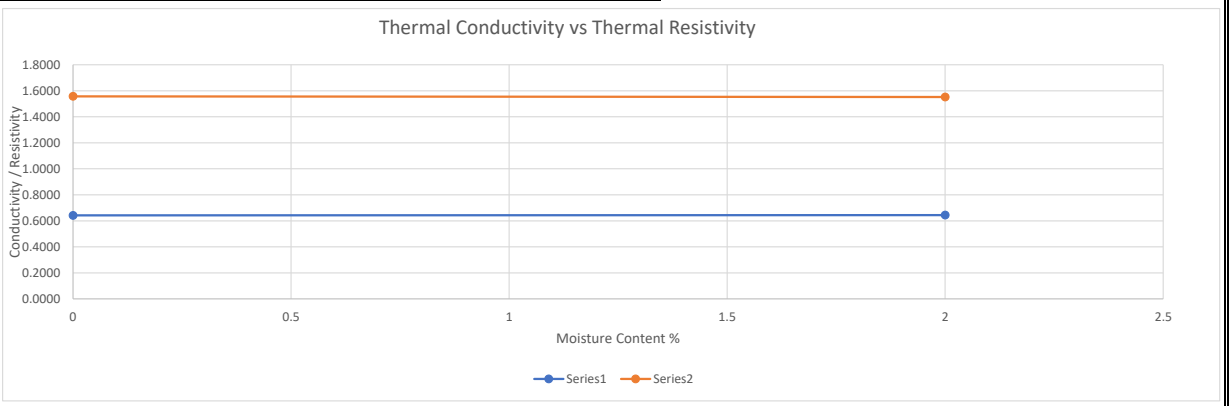
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Client	SMEC South Africa (Pty) Ltd	Device	1/01
Address	65 Riebeek Street	Oven	50c /107
Area	Cape Town	Balance	6Cc/155
Code	8001	Tester	Thembelihle
Project:	Notsi Solar - PV		
Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV3 - TP37	0 - 900	22.8	Insitu	No	0.642	1.557
		22.9	Insitu		0.644	1.552
		22.9	Insitu		0.680	1.470



Kind Regards

Ruan Potgieter
Technical Signatory / Branch Manager

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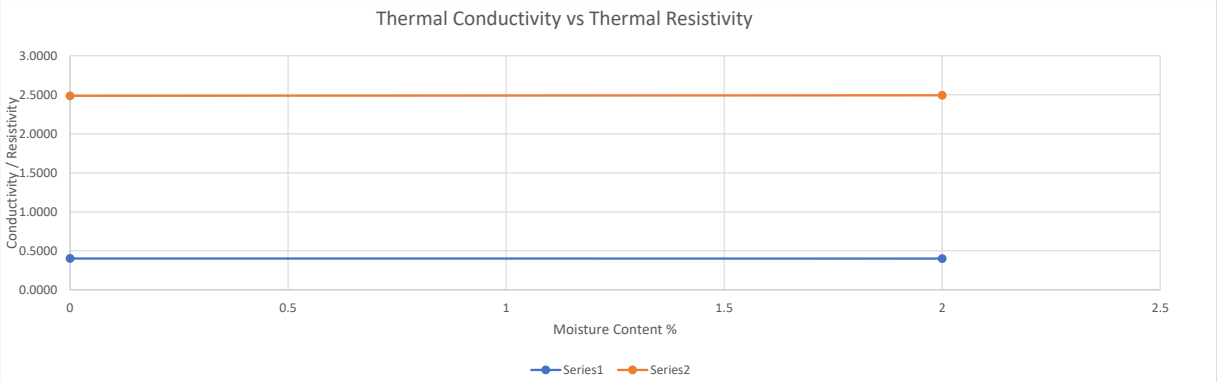
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Germiston, JHB, 1400

JOB NO: YOUR REF: RG30312 DATE: 22/11/2024

Client	SMEC South Africa (Pty) Ltd	Device	1/01
Address	65 Riebeek Street	Oven	50c /107
Area	Cape Town	Balance	6Cc/155
Code	8001	Tester	Thembelihle
Project:	Notsi Solar - PV		
Attention:	Mr. Solomon Lediga		

THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV5- TP05	0 - 500	25.6	Insitu	No	0.435	2.298
		25.8	Insitu		0.402	2.487
		25.9	Insitu		0.401	2.493



Kind Regards

Ruan Potgieter
Technical Signatory / Branch Manager

Remarks :

*Opinions & Interpretations are not included in our schedule of Accreditation
The samples were subjected to analysis according to SANS 10198-5:2004 Test Method
The results reported relate only to the sample tested
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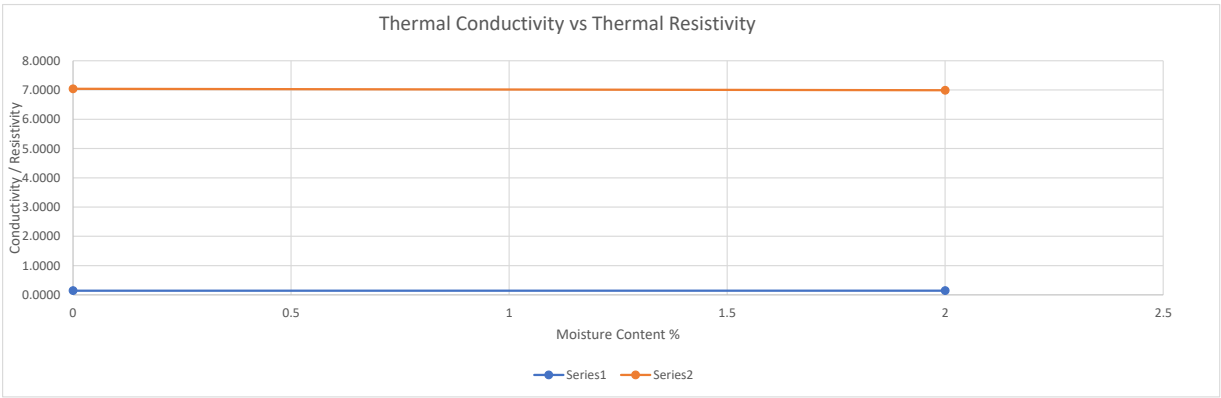
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THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV5 - TP08	0 - 900	24.9	Insitu	No	0.155	6.541
		24.8	Insitu		0.143	6.993
		24.8	Insitu		0.142	7.042



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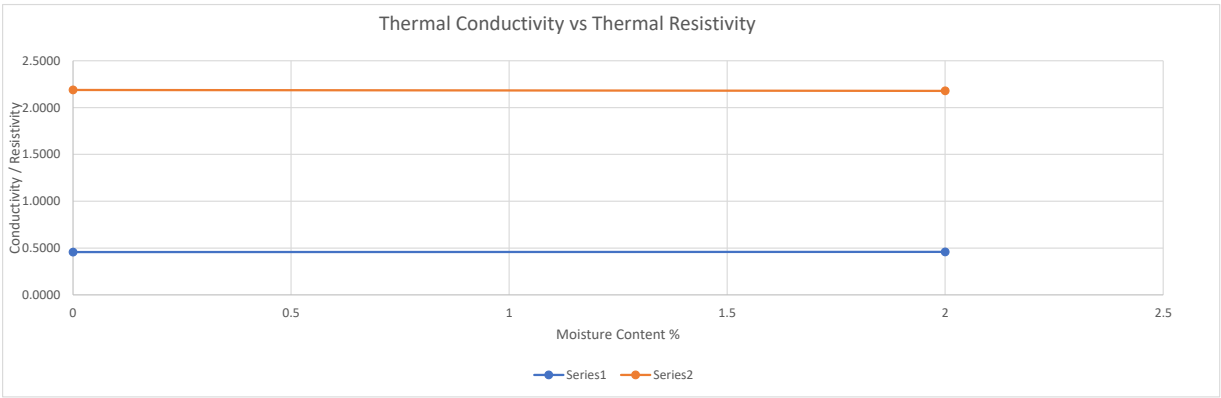
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THERMAL RESISTIVITY & CONDUCTIVITY (SANS 10198-5:2004)

Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV5- TP24	0 - 550	24.8	Insitu	No	0.457	2.188
		24.9	Insitu		0.459	2.178
		25	Insitu		0.491	2.036



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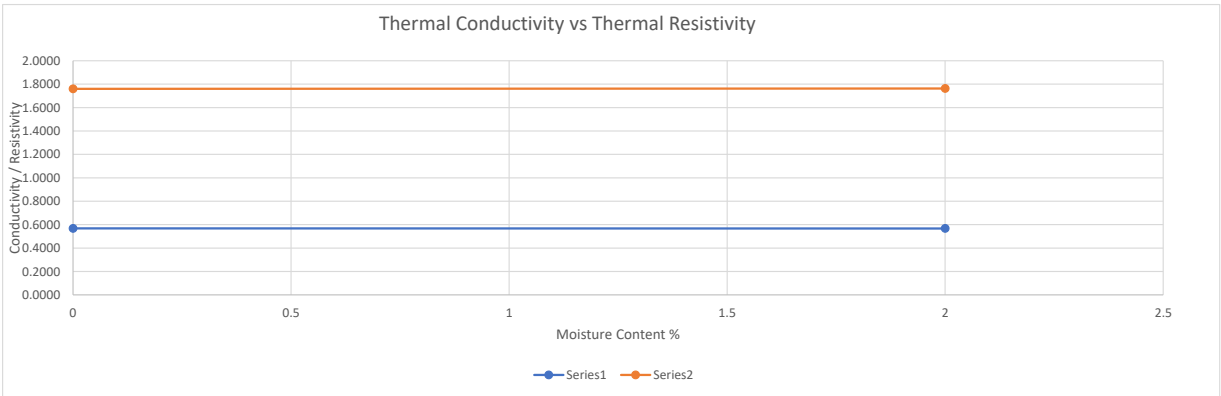
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Sample No/ Position	Depth	Temp	Moisture Content	Photo Attached (Yes/No)	Thermal Conductivity (K) W/m.K	Thermal Resistivity (g) K.m/W
PV5 - TP36	0 - 200	29.6	Insitu	No	0.568	1.760
		29.9	Insitu		0.567	1.763
		30.1	Insitu		0.609	1.642



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